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State Water Resources Control Board



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VIA DROP BOX

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*California Regional Water Quality Control Board, San Diego Region,
Order No. R9-2010-0016, 11-TC-03; County of Riverside, Riverside County Flood Control and
Water Conservation District, Cities of Murrieta, Temecula and Wildomar, Co-Claimants*

**COMMENTS OF STATE WATER RESOURCES CONTROL BOARD AND CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, ON TEST CLAIM
11-TC-03**

Dear Ms. Halsey:

The State Water Resources Control Board (State Water Board) and the San Diego Regional Water Quality Control Board (San Diego Water Board) (collectively "Water Boards") jointly file this opposition to Test Claim 11-TC-03. This Test Claim arises from a federal permit issued by the San Diego Water Board in 2010 as Order No. R9-2010-0016 (*Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the County of Riverside, the Incorporated Cities of Riverside County, and the Riverside County Flood Control and Water Conservation District Within the San Diego Region (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108766)*) (hereafter NPDES Permit, MS4 Permit or Permit). The Test Claim filed with the Commission on State Mandates (Commission) seeks reimbursement of estimated and other unspecified costs of implementing or complying with multiple requirements in the Permit.

I. INTRODUCTION

The San Diego Water Board issued this NPDES Permit pursuant to requirements in the federal Clean Water Act (CWA),¹ its implementing regulations, and guidance from the United States Environmental Protection Agency (U.S. EPA). The State Water Board and San Diego Water Board have been authorized by the U.S. EPA to issue NPDES permits—which are mandated by the CWA—in lieu of issuance of these permits by U.S. EPA. The Permit regulates the discharge of storm water runoff from the municipal separate storm sewer systems (MS4s) within

¹ Federal Water Pollution Control Act (FWPCA; 33 U.S.C.A. §§ 1251 et seq.) The federal Act is referred to herein by its popular name, the Clean Water Act (CWA) and the code sections used are those for the CWA.

FELICIA MARCUS, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

the County of Riverside. Claimants are incorporated cities within Riverside County, the County of Riverside and Riverside County Flood Control and Water Conservation District Copermittees) within the San Diego Region. Pursuant to the independent federal laws in the Clean Water Act, this Permit also requires prohibitions on the discharge of non-storm water *into* the Claimants' MS4s.² These prohibitions are not subject to the maximum extent practicable technical standard for storm water discharges.

The federal Clean Water Act prohibits discharges of pollutants to waters of the United States except in compliance with a NPDES permit. In the Clean Water Act, Congress mandated that local agencies must apply for and receive permits regulating discharges of pollutants from their MS4s to waters of the United States. Congress also mandated that local agencies prohibit discharges of most non-storm water discharges into their MS4s. Local agencies are generally issued a single system-wide MS4 permit for each inter-connected municipal storm sewer system.³ The San Diego Water Board issued Order No. R9-2010-0016 on November 10, 2010. As required by federal statute and regulations, the Permit contains numerous requirements for the Copermittees to take actions, known as Best Management Practices (BMPs), to reduce the flow of pollutants into waters in the San Diego Region in order to improve water quality. When it considered the Permit, the San Diego Water Board found that provisions and requirements were necessary to meet the maximum extent practicable standard (MEP) and are based exclusively on federal law.⁴

In order to obtain reimbursement, the Claimants must show as a threshold matter that the state has imposed new programs or higher levels of service.⁵ They must prove either that (1) the program must carry out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.⁶

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

Since the Test Claim was filed in November 2011, the California Supreme Court decided *Department of Finance v. Comm'n on State Mandates* (2016) 1 Cal.5th 749, as modified on denial of rehearing (Nov. 16, 2016) (*Department of Finance*). The Supreme Court's opinion was limited to a narrow issue: whether three conditions concerning trash receptacles and inspections

² CWA § 402(p)(3)(B)(ii).

³ CWA § 402(p)(3)(B)(i).

⁴ See, e.g., 2010 Permit, Findings D.1.a, D.1.c, D.1.f, D.2.e, D.3.a, Fact Sheet E.6., p. 93.

⁵ Cal. Const., Art. XIII B, § 6, subd. (a).

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

⁷ See Cal. Gov. Code § 17556.

in the 2001 Los Angeles Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit (LA MS4 Permit) required controls that would reduce the discharge of pollutants to the MEP, as required by the Clean Water Act.⁸

By contrast, the 2010 Riverside MS4 Permit (2010 Permit) reflects the San Diego Water Board's findings that each of the challenged permit terms was *necessary* to comply with the federal requirement that MS4 permits impose controls that reduce the discharge of pollutants to the MEP,⁹ and were based entirely on federal authority. The Supreme Court noted the absence of these findings in the LA Permit and further opined that such findings would be entitled to deference.¹⁰ In addition, the Supreme Court's primary focus was the construction of MEP. This test claim raises the following legal questions or factually distinct circumstances that the Supreme Court did not address:

1. The San Diego Water Board found the permit requirements at issue in this test claim were federal mandates. "Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate."¹¹ Such findings are "case specific, based among other things on factual circumstances."¹²
2. The LA permittees and Los Angeles Water Board did not dispute that each of the three challenged requirements were a new program or higher level of service¹³ and none were contained in previous permits.¹⁴ That is not the case in this Test Claim as the San Diego Water Board contends that none of the challenged requirements is a new program or higher level of service.
3. There was no evaluation of whether the contested provisions were required under a TMDL or other independent federal mandate such as the mandate to effectively prohibit non-storm water discharges into their MS4s.
4. None of the three requirements evaluated by the Supreme Court were terms U.S. EPA included in any EPA-issued MS4 NPDES permits.¹⁵
5. The Supreme Court did not evaluate whether the local government had the authority to levy fees or assessments pursuant to Government Code section 17556, subdivision (d). (*Id.* at p. 761 [acknowledging that the Commission found that the local governments were not entitled to reimbursement because they had authority to levy fees to pay for the required inspections, an issue the Supreme Court did not review].)
6. The Supreme Court did not consider the exception to unfunded state mandates for generally applicable requirements. The Permit's discharge requirements are generally applicable and do not impose "unique" obligations on municipal entities.¹⁶

⁸ *Id.* at p. 757, citing 33 U.S.C. § 1342(p)(3)(B).

⁹ See e.g., 2010 Permit, Findings D.1.a, D.1.c, D.1.f, D.2.e, D.3.a, Fact Sheet E.6., p. 93.

¹⁰ *Dep't. of Finance, v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

¹¹ *Ibid.*

¹² *Ibid.*, fn. 15.

¹³ *Id.*, at p. 762.

¹⁴ *Id.* at pp. 760-61.

¹⁵ *Id.* at pp. 761 and 771-72.

¹⁶ The Water Boards also note that in several instances Claimants rely upon the Commission's prior findings in *Statement of Decision in Case No. 07-TC-09, Discharge of Stormwater Runoff – Order No. R9-2007-0001*

(footnote continued on next page)

7. The Supreme Court did not evaluate the permittees' voluntary participation in the NPDES program.

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

II. BACKGROUND

The Water Boards contend that the challenged provisions impose neither new programs nor higher levels of service on local governments. Should the Commission disagree, the Water Boards urge the Commission to find that one or more of the legislative or judicially recognized unfunded state mandates exceptions apply to preclude any findings of subvention. The Water Boards discuss all of the provisions and applicable exceptions below. In light of the San Diego Water Board's findings that permit provisions are necessary for the Claimants to meet the MEP standard¹⁷ and are based entirely on federal authority,¹⁸ the principal question at issue will be to evaluate, with appropriate deference, whether the challenged provisions are federal mandates, as the San Diego Water Board determined when it adopted the Permit. The Water Boards elaborate on these issues below in both in general and provision-specific discussion, but here provide some additional legal context for the Water Boards' decisions and issuance of MS4 permits under federal law.

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

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

(footnote continued from previous page)

(March 30, 2010) as support for the arguments in this Test Claim. In considering the challenged Permit provisions, the Water Boards urge the Commission to recognize factual distinctions between the two permits and the fact that challenges to the Commission's findings on multiple mandates law matters in the 2010 Statement of Decision have not yet been resolved by the courts. Specifically, the courts have not yet determined how, if at all, the *Department of Finance* decision affects that matter and numerous other issues were raised but not addressed by *Department of Finance*.

¹⁷ See, e.g., 2010 Permit, Finding D.1.a. (the challenged non-storm water provisions are not subject to the MEP standard but are based on independent federal authority.)

¹⁸ See 2010 Permit Fact Sheet, Finding E.6, p. 93.

¹⁹ CWA §§ 301 and 402.

²⁰ CWA § 402(b).

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

²² Wat. Code, § 13372.

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

The Clean Water Act prohibits the discharge of pollutants from point sources to waters of the United States, except in compliance with an NPDES permit.²⁹ In 1973, U.S. EPA issued regulations that exempted certain types of discharges it determined were administratively infeasible to regulate, including storm water runoff. The reason that such regulation is difficult, as will be more fully explained below, is that storm water runoff generally is not subjected to any treatment. Instead, it simply runs off urban streets, into gutters and drainage ways, and flows directly into streams, lakes, and the ocean.³⁰ This exemption was overruled in *Natural Resources Defense Council v. Costle* (1977) 568 F.2d 1369, which held that the exemption was illegal, and ordered U.S. EPA to require NPDES permits for storm water runoff. In *Costle*, the court suggested innovative methods for permitting, including using general permits for numerous sources and issuing permits that "proscribe industry practices that aggravate the problem of point source Pollution."³¹ Where permits proscribe actions that dischargers must implement, these requirements are commonly called "best management practices" (BMPs). Despite the *Costle* decision, U.S. EPA had not adopted regulations implementing a permitting program for storm water runoff by 1987. That year, Congress amended the CWA, specifically requiring storm water permits for industrial and municipal storm water runoff.³² The amendments require NPDES permits for "[a] discharge from a municipal separate storm sewer system [MS4] serving a population of 250,000 or more."³³

²³ Wat. Code, § 13370.

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

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

²⁶ Wat. Code, § 13263.

²⁷ Wat. Code, § 13374.

²⁸ CWA § 402(b).

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

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

³¹ *Costle, supra*, at 1380.

³² CWA § 402(p).

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

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

On November 16, 1990, U.S. EPA published regulations addressing storm water discharges from MS4s.³⁸ The regulations establish minimum requirements for MS4 permits and generally focus on the requirement that MS4s implement programs to reduce the amount of pollutants found in storm water discharges to the MEP. However, the regulations also require the MS4’s program to include an element to detect and remove illicit discharges and improper disposal into the storm sewer.³⁹ “Illicit discharges” defined in the regulations is the most closely applicable definition of “non-storm water” contained in federal law, and the terms are often used interchangeably. The State Water Board has concluded that “U.S. EPA added the illicit discharge program requirement with the stated intent of implementing the Clean Water Act’s provision requiring permits to ‘effectively prohibit non-storm water discharges.’”⁴⁰ The importance of this history is to emphasize that the starting point for the discussion of MS4 permits is that *all discharges of any substance other than stormwater are prohibited - completely.*

B. Overview of Legal Standards for MS4 Permits

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

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

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

³⁴ CWA § 402(p)(3)(B).

³⁵ *Id.*

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

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

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

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

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

Administrator or the State determines appropriate for the control of such pollutants.

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

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

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

The federal regulations also require, among other elements, that a proposed management program must address oversight of discharges into the system from the general population, and from industrial and construction activities within its jurisdiction and shall include “[a] description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”⁴³

1. The Federal MEP Standard

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

⁴¹ CWA § 402(b).

⁴² 40 C.F.R. § 122.26(d)(2)(iv).

⁴³ *Id.*, § 122.26(d)(2)(iv)(A).

necessary to meet in this case, is discussed in more detail below as relevant to challenged permit provisions.

2. The Federal Prohibition on Non-Storm Water Discharges

Wholly independent from the MEP standard is the Clean Water Act requirement that MS4 permittees effectively prohibit non-storm water discharges to their MS4s. Under Clean Water Act section 402(p)(3)(B)(ii), permitting agencies must ensure that permits for MS4 discharges include requirements necessary to “effectively prohibit non-stormwater discharges into the storm sewers.” U.S. EPA has defined “storm water” to mean “stormwater runoff, snow melt runoff and surface runoff and drainage.” While “non-storm water” is not defined in the CWA or federal regulations, the federal regulations define “illicit discharge” as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water and that is not covered by an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer and discharges resulting from firefighting activities).”⁴⁴ This definition is the most closely applicable definition of “non-storm water” contained in federal law. Non-storm water discharges are generally considered dry weather discharges.⁴⁵ In general, the requirement to “effectively prohibit” non-storm water discharges requires either prohibiting the flows to the MS4’s system through a program to detect and remove illicit discharges or ensuring that operators of such non-storm water systems obtain NPDES permits for those discharges. MS4 operators meet this requirement by implementing a program to detect and remove illicit discharges, or by requiring a discharger to obtain a separate NPDES permit for the non-storm water discharge into the storm sewer.⁴⁶

C. Overview of Riverside County MS4 Permit Development

In 1990, pursuant to the CWA amendments of 1987, the San Diego Water Board issued the first municipal storm water permit to the County of Riverside and other copermitees. In May 1998,⁴⁷ and again in 2004 and 2010, the San Diego Water Board renewed the permit. The Permit that is the subject of this test claim is the fourth such permit. In part because of persistent exceedances of federal water quality objectives in most watersheds, the 2010 Permit increased the emphasis on storm water discharge management on a watershed basis. At that time, the San Diego Water Board noted that “[a]ddressing storm water on a watershed scale focuses on water quality results by emphasizing receiving waters within the watershed.”⁴⁸ As a general matter, the Permit carries over and builds on the prior permit programs and implements independent federal requirements, all with a focus on water quality outcomes.

⁴⁴ 40 C.F.R. § 122.26(b)(2).

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

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

⁴⁷ USEPA objected to and assumed responsibility for the 1998 Permit in September 1998. In 1999, USEPA reissued the permit with modifications to the receiving water limitations language necessary to comply with the Clean Water Act. USEPA returned the permit as revised to the San Diego Water Board for implementation and the subsequently modified the originally adopted permit to incorporate the USEPA-required changes in 2000.

⁴⁸ *Ibid.*

III. OVERVIEW OF MANDATES LAW

Article XIII B, Section 6, of the California Constitution requires subvention of funds to reimburse local governments for state-mandated programs in specified situations. There are several exceptions and limitations to the subvention requirements that provide bases for the Commission to determine that the Test Claim is not subject to subvention. Article XIII B, Section 6 provides, "Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service." Implementing statutes clarify that no subvention of funds is required if: (1) the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation (Govt. Code, § 17556, subd. (c)); or (2) the local agency proposed the mandate (*id.*, subd. (a)); or (3) the local agency has the authority to levy service charges, fees, or assessments sufficient to pay (*id.*, subd. (d)).

Numerous judicial decisions have further defined limitations on the requirements for subvention of funds. Specifically, subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or paid for with fees.⁴⁹ In addition, reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general application are not entitled to subvention.⁵⁰ The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required.⁵¹

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

Claimants contend that this Permit imposes numerous new programs or requires higher levels of service than previously required and that all of the activities for which they seek reimbursement exceed federal law. They also assert that the provisions are uniquely imposed on local government and they are unable to assess a fee to recover the costs of the mandated activities. As a threshold matter, the Test Claim provisions have not been determined to impose new programs or higher levels of service within the context of mandates law.⁵² The following general discussion of applicable mandates law supports denial of each of Claimants' challenges. Where appropriate, the Water Boards provide additional support for the conclusion that exceptions apply to specific challenged provisions, in Section V, below.

⁴⁹ *County of Los Angeles v. Commission on State Mandates* (2003) 110 Cal.App.4th 1176; *Redevelopment Agency v. Commission on State Mandates* (1997) 55 Cal.App.4th 976.

⁵⁰ *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46.

⁵¹ *City of Richmond v. Commission on State Mandates* (1998) 64 Cal.App.4th 1190.

⁵² What constitutes a new program or higher level of service in the context of municipal storm water permits remains unresolved. The issue was raised in the Water Boards' and Department of Finance's Petition for Writ of Mandate regarding the Statement of Decision in 07-TC-09 (San Diego Water Board Order No. R9-2007-0001), referenced above.

Even if the Commission finds that some of the challenged provisions do impose a new program or higher level of service, as explained below, the challenged provisions are nonreimbursable because of applicable mandates exceptions. The Claimants, as well as other Copermitees, proposed concepts on which many of the challenged permit requirements are based in their permit application, or report of waste discharge (ROWD) or in the permitting process for their requested permit. The San Diego Water Board found that the challenged provisions were adopted entirely under federal law and are necessary to implement the MEP standard and other independent federal law requirements. Therefore none of the costs are for activities exceeding federal requirements. Claimants are not *required* to use taxes to pay for the costs for the programs. They can be paid for by levying fees especially enacted for storm water programs.⁵³ The local agencies have not established that tax monies are required.⁵⁴

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

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

Not a New Program

Under mandates law, a program is defined as “a program which carries out the ‘governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.’” (*County of Los Angeles v. Comm’n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) A program is “new” if the local government had not previously been required to

⁵³ The Claimants generally state that they are unaware of authority to raise fees or impose surcharges to fund the modifications to their Permit. The claimants refer to limitations on assessing fees and surcharges under California law. The referenced law concerns only the percent of voters who must approve the assessment. The Cities of Palo Alto, San Clemente, San Jose, Alameda and Santa Cruz have storm water fee funded programs. Thus, the municipalities have not shown they are *required* to rely on using tax money to fund challenged activities.

⁵⁴ As mentioned in the Introduction, what constitutes fee authority in the context of municipal storm water permits, particularly with consideration of Proposition 218, remains unresolved. The Commission did not consider the later approved Proposition 26. In their petition for writ of mandate in *State of California, Department of Finance, et al., v. Commission on State Mandates*, Sacramento County Superior Court, Case No. 34-2010-80000604, the Water Boards and Department of Finance challenged the Commission's conclusion in the underlying Statement of Decision in 07-TC-09 that the requirement for voter approval as prerequisite to raising fees precluded finding that a local agency has fee authority to pay for some permit-related activities. Likewise, Claimants in a cross-petition for writ in the same matter challenged the sufficiency of the evidence supporting the Commission's underlying determination that local agencies have authority to fund hydromodification and low impact development programs through their land development programs. These issues remain unresolved. The Court of Appeal has set oral argument in this matter for November 20, 2017.

institute it. (*Ibid.*) Here, even if each of the challenged provisions could be considered a “program,” none meets the definition of “new.” Claimants had been permitted under the NPDES program implementing storm water programs for more than two decades at the time the MS4 Permit was adopted. Prior permits, like the Permit, included management plan requirements, monitoring programs, annual reporting requirements, land development requirements, enforcement obligations, and the requirement to comply with receiving water limitations and prohibitions through an iterative process.⁵⁵

No Higher Levels of Service

The changes to the requirements of prior permits (e.g., increased detail or specificity) also do not amount to a higher level of service, both because equivalent changes are applicable to non-municipal permittees, discussed in Section V, below, and because they are merely refinements of existing requirements.⁵⁶ A higher level of service is not simply any increase in costs. “If the Legislature had intended to continue to equate ‘increased level of service’ with ‘additional costs,’ then the provision would be circular: ‘costs mandate by the state’ are defined as ‘increased costs’ due to an increased level of service, which, in turn would be defined as ‘additional costs.’”⁵⁷ Costs for purposes of Section 6 do “not equal every increase in a locality’s budget resulting from compliance with a new state directive.”⁵⁸

Nor does every increase in specificity about where to direct costs amount to a higher level of service.⁵⁹ That the level of specificity in a permit reconsidered and reissued every five years may have changed over time is consistent with U.S. EPA’s guidance that MS4 permitting follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. (See, 55 Fed. Reg. 47990, 48052 (“EPA anticipates that storm water management programs will evolve and mature over time.”); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999) (“EPA envisions application of the MEP standard as an iterative process.”) and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) (“The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.”))⁶⁰

Rather, the costs incurred must involve programs previously funded exclusively by the state. (See *City of San Jose v. State of California* (1996) 45 Cal. App.4th 1802, 1812 [citing *Lucia Mar Unified School Dist. v. Honig* (1988) 44 Cal.3d 830, 836]; see also *County of Sonoma v. Comm’n on State Mandates* (2000) 84 Cal. App.4th 1264, 1288 [state law requiring reallocation of school funds from one local government entity to another, where local government generally

⁵⁵ See, San Diego Water Board Order Nos. 98-02 (as issued by U.S. EPA in 1999 and reissued by the San Diego Water Board in 2000) and R9-2004-001, both issued to Riverside County Copermittees in the San Diego Region.

⁵⁶ See *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App. 4th at pp. 1189-1190.

⁵⁷ *Id.*, at p. 1191.

⁵⁸ *Id.*, at p. 1194; accord *San Diego Unified School Dist. v. Comm’n on State Mandates* (2004) 33 Cal.4th 859, 876-877.

⁵⁹ See *Id.*, at p. 1194 [requiring local law enforcement agencies devote some of their training budgets to domestic violence training was not a higher level of service].

⁶⁰ See Letter from U.S. EPA, Alexis Strauss, to State Water Board, April 10, 2008, concerning Los Angeles County Copermittee Test Claims Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.

had always had a substantial role in funding schools, did not impose a higher level of service].) The “state must be attempting to divest itself of its responsibility to provide fiscal support for a program, or forcing a new program on a locality for which it is ill equipped to allocate funding.” (See *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1194; accord *Dept. of Finance v. Comm’n on State Mandates*, *supra*, 1 Cal.5th at p. 771 [agreeing that state had shifted responsibility for some industrial inspections to local government agency].)

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

In this case, any costs arising from the Permit’s requirements do not result from a “new” program. Nor do they result from a “higher level of service,” because the state has not shifted its own responsibilities to local agencies and the permittees are not “ill-equipped” to allocate funding to storm water control. And, as explained below, Copermitees have been subject to the same federal standards (the federal MEP standard or the requirement to effectively prohibit non-storm water discharges) since 1990. Whether must implement different approaches in an effort to achieve the required federal standards does not mean the state has imposed a new program or required performance of a higher level of service.

B. Mandates Exceptions Preclude Finding Subvention is Required

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

Federal law specifically requires that permits be issued to the local governments that operate MS4s and that permits must require programs and actions that will result in reducing the pollutants that discharge from the MS4 to waters of the United States to the maximum extent practicable. If the Water Boards had not been authorized to issue the permit in lieu of U.S. EPA, the MS4 discharges would be prohibited unless U.S. EPA itself issued a similar permit directly to the local governments. Therefore, in issuing the permit provisions necessary to comply with federal law, the San Diego Water Board exercised its duty under federal law. As the Ninth Circuit Court of Appeals held in *Natural Resources Defense Council v. U.S. EPA* (9th Cir. 1992) 996 F.2d 1292, “Congress did not mandate a minimum standards approach.”⁶¹ Rather, Congress mandated that the permitting entity, here the San Diego Water Board, determine appropriate provisions designed to control pollutants.⁶²

⁶¹ *NRDC v. U.S. EPA*, *supra*, at 1308.

⁶² *Id.*

The Court of Appeal in *Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region*, succinctly addressed the federal mandate on the regional water boards to prescribe requirements that meet the federal MEP standard.⁶³

In creating a permit system for dischargers from municipal storm sewers, Congress intended to implement actual programs. (*Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1375.) The Clean Water Act authorizes the imposition of permit conditions, including: “management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (33 U.S.C. § 1342, subd. (p)(3)(B)(iii).) The Act authorizes states to issue permits with conditions necessary to carry out its provisions. (33 U.S.C. § 1342, subd. (a)(1).) The permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants. (*NRDC v. EPA* (9th Cir.1992) 966 F.2d 1292, 1308.) That is what the Regional Board has created in the 2002 permit.⁶⁴

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

An essential underpinning of *Department of Finance* is the Supreme Court's determination that the LA MS4 Permit had as its roots both federal and State law. The Los Angeles Water Board made no finding that the permit requirements were necessary to implement the MEP standard.⁶⁵ Instead, the Los Angeles Water Board found only that the permit was consistent with or within the federal standard.

In contrast, when issuing the Permit, the San Diego Water Board implemented *only federal law*. The San Diego Water Board found: “[I]t is entirely federal authority that forms the legal basis to establish the permit provisions[,]”⁶⁶ and that “[T]his Order implements federally mandated requirements under the CWA” including “federal requirements to effectively prohibit non-storm

⁶³ *City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region* (2002) 135 Cal.App.4th 1377.

⁶⁴ *Rancho Cucamonga, supra*, at 1389.

⁶⁵ *Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 768.

⁶⁶ 2010 Permit Fact Sheet, p. F-34.

water discharges, to reduce the discharge of pollutants in storm water to the MEP.”⁶⁷ Findings in Section E of the Permit and Fact Sheet set forth the Board's regulatory basis for issuing the Permit. Collectively, these findings make it clear that the Board intended to and did rely solely on federal law in issuing the Permit.⁶⁸

The discussion herein describes how the contested provisions meet the MEP standard. In *Department of Finance*, the Supreme Court held that, “Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate.”⁶⁹ Unlike the LA MS4 permit, the San Diego Water Board made findings in connection with specific challenged provisions, that such provisions were necessary to implement the maximum extent practical standard.⁷⁰ The San Diego Water Board also found:

The authority exercised under this Order is not reserved state authority under the Clean Water Act's savings clause (cf. *Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not 'less stringent' than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, *it is entirely federal authority that forms the legal basis to establish the permit provisions.* (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.)⁷¹

As the Supreme Court held, “deference to the board's expertise in reaching that finding would be appropriate.”⁷²

The Water Boards understand the Supreme Court to mean that, to be entitled to deference, regional boards must make an express finding that the particular set of permit conditions finally embodied in a given permit is required to meet that federal standard, and must support that finding with evidence. The opinion is consistent with the Boards' reading of the Clean Water Act: where a regional board has devised a set of conditions necessary to ensure local governments' compliance with federal law (that is, a set of conditions that is federally mandated), the regional board does not have a choice to impose some other, less rigorous, set of conditions.

⁶⁷ *Id.*

⁶⁸ The finding that the permit terms are necessary to satisfy the federal MEP standard under the factual circumstances presented means the San Diego Water Board did not impose more stringent terms under the Porter-Cologne Water Quality Control Act, which it is authorized to do. (See *City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 626-629.)

⁶⁹ *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

⁷⁰ See, e.g., 2010 Permit, Finding D.1.a. (“This Order specifies requirements necessary for the Copermitees to reduce the discharge of pollutants in storm water to the MEP.”)

⁷¹ 2010 Permit Fact Sheet, p. F-93 (emphasis added).

⁷² *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

Additionally, this Permit, like its predecessors, implements the wholly separate Clean Water Act requirement that local agencies effectively prohibit non-storm water discharges into their storm sewers. Specifically, the Clean Water Act provides that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers.”⁷³ Permit provisions crafted to compel compliance with this federal mandate have been applicable since the first MS4 permit in 1990 do not constitute imposition of a new program or require that Copermitees perform a higher level of service.

Department of Finance addressed the narrow question of whether the federal MEP standard and certain implementing regulations⁷⁴ mandated both the trash can and inspection requirements contained in the LA Permit. In reaching its decision, the Supreme Court's analysis necessarily turned on whether, and to what extent, the MEP standard and the specific implementing regulations compelled the Los Angeles Regional Board to impose the challenged permit conditions.⁷⁵ Consequently, the Supreme Court decision has limited application when the federal standard compelling a challenged permit provision is wholly separate from the MEP standard and those specific implementing regulations. One of the exceptions to the subvention requirements is if the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation.⁷⁶

The non-storm water provisions are authorized by an independent federal requirement not analyzed by the Supreme Court in the *Department of Finance* decision.

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

The Supreme Court observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 Permit), and found that the absence of such conditions in EPA-issued permits “undermines the argument that the requirement was federally mandated.”⁷⁷ The Court's modifications to its original opinion underscore that determining what constitutes MEP is a case-specific, factual determination and the absence of similar conditions in U.S. EPA-issued permits is not fatal to the argument that a particular requirement is necessary to meet the federal standard.⁷⁸ U.S. EPA has, however,

⁷³ CWA § 402(p)(3)(B)(ii).

⁷⁴ The Supreme Court considered Title 40 of the Code of Federal Regulations, parts 122.26(d)(2)(iv)(A)(3), (B)(1), (C)(1), and (D)(3) in reaching its decision. (*Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 749.)

⁷⁵ *Id.* at p. 767 (“The federal CWA broadly directed the board to issue permits...designed to reduce the pollutant discharges to the maximum extent practicable”).

⁷⁶ Gov. Code, § 17556, subd. (c).

⁷⁷ *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 772.

⁷⁸ The Court:

The opinion in this matter filed on August 29, 2016, and appearing in the California Official Reports at 1 Cal.5th 749, is modified as follows: On page 768 of the published opinion, a footnote is inserted at the end of the sentence that reads: “The board's legal authority to administer the CWA and its technical experience in water quality control would call on sister agencies as well as courts to defer to that finding.” The new footnote, which is numbered as footnote 15, reads: “Of course, this finding would be case specific, based among other things on local factual circumstances.” On page 771 of the published opinion, current footnote 15 is renumbered as footnote 16. On page 772 of the published opinion, the word “fatally” is deleted from the sentence that reads:

(footnote continued on next page)

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

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

The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 67722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP as an iterative process.") Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round stormwater permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")⁷⁹

The permit provisions are, as the San Diego Water Board concluded, federal mandates. Even if the Commission concludes that some aspect of a challenged provision imposes requirements that exceed a federal mandate, the costs to implement those activities are *de minimis* and therefore not entitled to subvention.⁸⁰

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

None of the challenged provisions is subject to subvention because the Permit is not imposed uniquely upon local government. In order to obtain reimbursement, the Claimants must demonstrate either that (1) the program must carry out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, implement unique requirements on local governments and do not apply generally to all residents. (Cal. Const. Art. XIII B, § 6, subd. a; see also *City of Richmond v. Comm'n on State Mandates* (1998) 64 Cal.App.4th 1190, 1199.) "[T]he intent underlying section 6 was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities."⁸¹

(footnote continued from previous page)

"The fact the EPA itself had issued permits in other cities, but did not include the trash receptacle condition, fatally undermines the argument that the requirement was federally mandate."

⁷⁹ Letter from Alexis Strauss to Tam Doduc and Dorothy Rice, April 10, 2008, concerning Los Angeles County Copermittees Test Claim Nos. 03-TC-04, 03-TC-19, 03-TC 20 and 03-TC-21.

⁸⁰ See generally, *San Diego Unified School District v. Comm'n on State Mandates* (2004) 33 Cal.4th 859, 889.

⁸¹ *Id.*, at p. 874

Reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general applicability are not entitled to subvention because they do not “force” programs on localities.⁸² The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required.⁸³

U.S. EPA requires both municipal and non-municipal storm water discharges to be controlled.⁸⁴ Moreover, numerous provision of the Regional Permit are “laws of general applicability” and therefore fail to constitute an unfunded state mandate. (See *City of Richmond v. Comm’n on State Mandates*, *supra*, 64 Cal.App.4th at pp. 1197-1198.) Compliance with NPDES regulations, and specifically with storm water requirements, is required by private industry as well as state and federal government agencies.⁸⁵ Local government is not subject to “unique” requirements. In fact, municipal storm water discharges are not managed as stringently as industrial and construction storm water discharges.⁸⁶ Likewise, WLAs developed in federally required TMDLs are applied to identified sources of pollutants, whether MS4 operators, private industry, or government agencies.⁸⁷ Thus, while the permit provisions in this Permit apply only to the public entities enrolled in the permit, the substantive actions required by the permit’s provisions are by no means unique to this class of permittee. That other NPDES permits impose similar requirements on non-local agencies demonstrates that the storm water program is not unique to local government.

4. Separate Storm Water Discharge is a Voluntary Program

No subvention is required when a local agency incurs costs voluntarily. (See *Dept. of Finance v. Comm’n on State Mandates* (2003) 30 Cal. 4th 727, 743 [costs of complying with program requirement to prepare agenda not entitled to subvention where participation in program itself was voluntary]; *City of Merced v. State of Cal.* (1984) 153 Cal. App. 3d 777, 783 [payment for loss of goodwill not state mandated where city elected to acquire property by eminent domain].) Here, similarly, there is no requirement that a municipality discharge via storm sewers or directly into waters of the United States. MS4 permittees, like all other permittees seeking approval to discharge to waters of the United States, must obtain permission in the form of a Clean Water Act NPDES permit before doing so.⁸⁸

⁸² *Id.* at p. 875; *County of Los Angeles v. State of California*, *supra*, 43 Cal.3d at pp. 56-57.

⁸³ *Ibid.*; *City of Richmond v. Comm’n on State Mandates*, *supra*, 64 Cal.App.4th at p. 1197.

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

⁸⁵ See e.g., State Water Board Caltrans MS4 Order (*NPDES Statewide Storm Water Permit, Waste Discharge Requirements for State of California, Department of Transportation* (State Water Board Order WQ 2012-0011)), State Water Board Industrial General Storm water Permit (State Water Board Order WQ 2014-0057), Naval Base San Diego NPDES Permit (San Diego Water Board Order No. R9-2016-0163), Naval Base Coronado NPDES Permit (San Diego Water Board Order No. R9-2015-0117) and NPDES Permit for National Steel and Shipbuilding Company (NASSCO) (San Diego Water Board Order No. R9-2016-0116) containing storm water and non-storm water requirements.

⁸⁶ *Defenders of Wildlife v. Browner*, *supra*, 191 F.3d at pp. 1164-1165 [distinguishing “strict compliance” required of industrial storm water dischargers to MEP standard applicable to municipal storm water dischargers.]

⁸⁷ See Section V.B., below, regarding TMDLs that are also applicable to agricultural dischargers and Caltrans.

⁸⁸ See *NRDC v. County of Los Angeles*, *supra*, 725 F.3d at p. 1198 (citing *Arkansas v. Oklahoma* (1992) 503 U.S. 91).

5. Claimants Have Authority to Raise Fees for Contested Provisions

Subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or funded through service charges, fees, or assessments. (See Gov. Code, § 17556, subd. (d) [costs not mandated by the state when the local agency has “authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service”]; *County of Los Angeles v. Comm’n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1189 [“in order for a state mandate to be found, the local governmental entity must be required to expend the proceeds of its tax revenues”]; *Redevelopment Agency v. Comm’n on State Mandates* (1997) 55 Cal.App.4th 976, 987 [“No state duty of subvention is triggered where the local agency is not required to expend its proceeds of taxes”].)⁸⁹ Subvention of funds is only required if expenditure of tax monies is required, and not if the costs are simply reallocated or funded through other means.⁹⁰

In the Commission’s Statement of Decision considered in *Department of Finance*, the Commission found that all but one of the challenged provisions issued by the Los Angeles Water Board in its MS4 permit did not qualify as unfunded state mandates as they did “not impose costs mandated by the state within the meaning of article XIII B, Section 6 of the California Constitution because the claimants have fee authority (under Cal. Const. article XI, § 7) within the meaning of Government Code section 17556, subdivision (d), sufficient to pay for the activities in those parts of the permit.”⁹¹ Although the Supreme Court acknowledged the Commission’s finding, it did not address the fee issue but remanded for further proceedings. *Department of Finance* is thus inapplicable on this issue.

Similarly, here, Claimants have not demonstrated that they are precluded from establishing or raising fees. Claimants subject to this Permit are not *required* to use taxes to pay for the costs of the programs, and can levy fees, such as inspection fees. The claimants have the ability to charge fees to cover development program costs.⁹² Municipalities can and do adopt fees from their residents and businesses that fund their stormwater programs. For example, the City of Alameda has adopted fees for implementation of their programs. (See, e.g., Alameda website [describing stormwater fee structure].) Indeed, Palo Alto recently raised its stormwater fee last year. The Cities of San Clemente, San Jose and Santa Cruz have also adopted fee

⁸⁹ The claimants must also demonstrate that the fees are more than *de minimis*. (*San Diego Unified School Dist. v. Commission on State Mandates*, *supra*, 33 Cal.4th at p. 889 [“incidental procedural requirements, producing at most de minimis added cost, should be viewed as part and parcel of the underlying federal mandate, and hence nonreimbursable under Government Code, section 17556, subdivision (c)”].) *Department of Finance* did not consider when a particular cost is *de minimis*. Except to the extent the Court affirmed prior holdings that *de minimis* costs do not create reimbursable mandates, *Department of Finance* does not apply to the Commission’s determination on that issue.

⁹⁰ Claimants must establish that they are required to use tax monies to pay for implementation of permit provisions. (Gov. Code §§ 17553, subd. (b)(1)(F) [test claim must identify funding sources, including general purpose funds available for this purpose, special funds and fee authority]; and Gov. Code § 17556, subd. (d).)

⁹¹ County of Los Angeles Test Claim, Statement of Decision, p. 2.

⁹² For a general overview of funding mechanisms that have been employed by municipalities, see Black and Veatch 2005 Stormwater Utility Survey, p. 2 (72% cited stormwater user fees as major [at least 90% of total income] revenue sources and the majority of utilities reported funding was adequate to meet all or most needs).

assessments.⁹³ Whether circumstances make it impractical to assess fees is not relevant to the inquiry. (*Connell v. Sup. Ct.* (1997) 59 Cal.App.4th 382, 398 [where statute on its face authorized water districts to levy fees sufficient to pay the costs associated with a regulatory change, there was no right to reimbursement]; *Clovis Unified School Dist. v. Chiang* (2010) 188 Cal.App.4th 794, 812 [“to the extent a local agency... ‘has the authority’ to charge for the mandated program or increased level of service, that charge cannot be recovered as a state mandated cost”].)

V. SPECIFIC RESPONSES

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

A. Removal of Categories of Irrigation Runoff from Non-Prohibited Non-Storm Water Discharges (Directive B.2.)

Claimants contend that the 2010 Permit’s removal of three previously exempted categories of non-storm water discharges – irrigation water discharges comprising irrigation water, landscape irrigation and lawn watering – exceeds the federal law requirements. Claimants misinterpret the applicable federal requirement and disregard factual information in the record that supports removal of these discharge categories from the list of exempted non-storm water discharges. The San Diego Water Board’s determination to remove these categories was based exclusively on the federal law mandate requiring MS4 permittees to effectively prohibit non-storm water discharges to the MS4.⁹⁴

As discussed above, the Clean Water Act requires that MS4 permittees effectively prohibit non-storm water discharges to the MS4.⁹⁵ Non-storm water discharges are not subject to the MEP standard applicable to storm water discharges.⁹⁶ Federal MS4 permit application requirements specify that an applicant must demonstrate adequate legal authority to “[p]rohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer;” and “[c]ontrol through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water.”⁹⁷ The regulations define the term “illicit discharges” as: “any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire-fighting activities.”⁹⁸ In other words, since illicit discharges are not authorized by the Clean Water Act, they must be prohibited.

⁹³ See documentation of City of Alameda Storm Water Fee Ordinance, City of Palo Alto Storm Drainage Fee Ordinance, and storm water fees authorized in Cities of San Clemente, San Jose and Santa Cruz, included as attachments to this response.

⁹⁴ See 2010 Permit, Finding E.6., Fact Sheet, p. 93.

⁹⁵ CWA § 402(p)(3)(ii).

⁹⁶ *Id.*, and see also, State Water Resources Control Board Order No. WQ-2015-0075, pp. 62-63.

⁹⁷ 40 C.F.R. § 122.26(d)(2)(i)(B) and (C).

⁹⁸ *Id.* § 122.26(b)(2).

Implementing federal regulations do, however, identify a number of categories of non-storm water discharges that need not be treated as illicit unless a municipality has identified the category as a source of pollution. These include categories of discharges such as from foundation drains, springs, crawl space pump water, air conditioning condensation, residential car washing and dechlorinated swimming pool discharges.⁹⁹ Where, as here, a municipality has identified previously exempt categories of non-storm water discharge as sources of pollutants, the categories represent illicit discharges and must be prohibited in compliance with the CWA.¹⁰⁰

Claimants argue that removal of the exemptions for irrigation waters in Directive B.2. of the 2010 Permit exceeds federal law in part because the applicable federal regulations only require categories of discharges be addressed if the municipality, and not the regulating entity, identifies the category as a source of pollutants to the MS4s. The 2010 Permit reflects, however, that Claimants identified landscape irrigation, irrigation water and lawn watering as significant dry weather, non-storm water contributors of pollutants to MS4s during the permit development process. For example, as discussed in the Permit, the Cities and County of Riverside's "Only Rain in the Storm Drain" Pollution Prevention Program identifies runoff from irrigation as a source of pollutants to waters of the United States in the following documents: (1) The Landscape and Garden public education brochure ["Soil, yard wastes, over-watering and garden chemicals become part of the urban runoff mix that winds its way through streets, gutters and storm drains before entering lakes, rivers, streams, etc."]; and (2) In a survey distributed at public outreach events the answer to the question about where lawn irrigation water goes states: "Water that leaves your lawn from irrigation . . . can pick up motor oil and grease from vehicles, excess fertilizer from your lawn, bacteria from pet waste, and excess pesticides from your yard. These pollutants can be carried down the streets and storm drains directly to our streams, lakes and rivers without treatment!"¹⁰¹

The record for this Permit reflects statewide recognition of the pollution caused by over-irrigation (see, e.g., legislation directed at prevention of over-irrigation, A.B. 1881, enacted as Water Conservation in Landscaping Act) and also reflects that pollution in irrigation waters is ubiquitous and would be extremely difficult to isolate and address on a site-by-site basis.¹⁰² Therefore, requiring Claimants to address only individual sites, rather than the categories of irrigation waters, as they suggest, would not satisfy the federal requirements. U.S. EPA endorsed the removal of these three categories from the regulatory list of exempted non-storm water discharges.¹⁰³ For these reasons, the Commission should give significant weight to the San Diego Water Board's conclusion that these provisions are required by federal law. If the Commission nonetheless finds that the removal of these exempt categories was not required by federal law, other mandates exceptions apply to make the provision inapplicable.

⁹⁹ *Id.* § 122.26(d)(2)(iv)(B)(i).

¹⁰⁰ CWA § 402(p)(3)(B)(ii).

¹⁰¹ The survey was included in the Riverside County Copermittees' Report of Waste Discharge dated January 15, 2009, p. 39. See also Permit Fact Sheet, pp. 108-109.

¹⁰² See 2010 Permit Fact Sheet, pp. 107-111.

¹⁰³ See U.S. EPA Comment Letter, September 7, 2010, pp. 2-3.

There is No New Program or Higher Level of Service

The change to the 2010 Permit reflects the operation of federal law as implemented in the two prior permits issued to Claimants. In Order No. 98-02, issued by U.S. EPA in 1999 and later adopted by the San Diego Water Board for implementation, U.S. EPA established the required federal prohibition on non-storm water discharges as follows: “The permittees shall prohibit non-storm water discharges into the MS4. NPDES permitted discharges are exempt from this prohibition.”¹⁰⁴ The 2004 Permit carried over the prohibition: “Each Permittee shall effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate NPDES permit; or authorized in accordance with Requirements B.2. and B.3. below.”¹⁰⁵ Both prior permits recognize categories of exempted non-storm water discharges but specified processes for removing the exemptions when categories are identified as sources of pollutants.¹⁰⁶ When the municipality has provided information showing that a category of discharge is a source of pollutants, federal law requires it to address the category in a manner similar to other recognized illicit discharges under the federal non-storm water provisions in place for decades. Implementation of this decades-old standard does not amount to imposition of a new program or any higher level of service than was previously in place. Copermittees are expected to perform the same level of service as in prior permits – effectively prohibit unauthorized non-storm water discharges. The categories identified as sources of pollutants must be removed for them to achieve the standard already imposed. Because there state has not imposed a new program or required a higher level of service, the challenged provision is not a state mandate subject to subvention.

For all these reasons, and for the additional reasons discussed in the General Responses, above, the Commission should find that removal of these previously exempted irrigation water categories from Directive B.2. is not a state mandate subject to subvention.

B. Requirement to Meet Non-Storm Water Action Levels or NALS (Directives C and F.4.)

The Claimants challenge as unfunded state mandates certain 2010 Permit provisions that require monitoring, reporting and appropriate responses when non-storm water dry weather action levels (NALs) are exceeded. The NALs provisions are necessary to meet the federal standard set forth in the CWA at section 403(p)(3)(b)(ii). As discussed above in General Responses, the 2010 Permit carries forward from prior permits and implements the CWA’s requirement that each Copermittee effectively prohibit all types of unauthorized non-storm water discharges into its MS4.¹⁰⁷ The 2010 Permit includes action levels for pollutants in non-storm water discharges from the MS4 designed to ensure that the requirement is complied with. The Order establishes action levels based on applicable water quality objectives from the Basin Plan and other water quality control plans¹⁰⁸ and describes actions that the Copermittees must take when they observe

¹⁰⁴ Order No. 98-02 (amended in 2000 to reflect revisions required by USEPA in 1999), Section A.2, p. 2.

¹⁰⁵ Order No. R9-2004-001, section B.1, p. 7.

¹⁰⁶ Order No. 98-02, pp. 2-3; Order No. R9-2004-001, section B.2 – B.4, pp. 7-8.

¹⁰⁷ CWA § 402(p)(3)(B)(ii).

¹⁰⁸ See e.g., Basin Plan and Water Quality Control Plan for Ocean Waters of California (Ocean Plan).

exceedances of the action levels. The determination to include action levels resulted from evaluation of available information leading to the conclusion that Copermittee reliance on existing BMPs for almost 20 years had yet to result in compliance with applicable water quality standards. U.S. EPA has long-ago noted:

Conveyances which continue to accept other “non-storm water” discharges (e.g. discharges without an NPDES permit) with the exceptions noted above (*exempted discharges that are not a source of pollutants*) do not meet the definition of municipal separate storm sewer and are not subject to 402(p)(3)(B) of the CWA unless such discharges are issued separate NPDES permits. Instead, conveyances which continue to accept non-storm water discharges which have not been issued separate NPDES permits are subject to sections 301 and 402 of the CWA.¹⁰⁹

Except in compliance with specific sections of the CWA, including section 402, the CWA prohibits any discharge of pollutants to waters of the United States.¹¹⁰ U.S. EPA supported inclusion of the NALs, comparable to those adopted in the 2009 Orange County Permit at issue in Test Claim 10-TC-11, as “consistent with our efforts to ensure MS4 permit requirements are more measurable and enforceable.”¹¹¹ In commenting on the 2013 Regional MS4 Permit, U.S. EPA endorsed NALs, saying “we still believe the clarity and enforceability of the permit would be enhanced by adding clearer provisions for acting upon action level exceedances to the permit similar to the Board’s 2009 permit for Orange County.”¹¹² U.S. EPA expanded on the importance and value of action levels in similar comments to the Santa Ana Water Board in 2014,

[T]he Permit should be revised to include action levels as part of the permits monitoring and reporting program. . . . The goal of including both non-stormwater and stormwater action levels is to guide implementation efforts and measure progress towards the protection of water quality and [designated] beneficial uses of the state from adverse impacts caused or contributed to by MS4 discharges.¹¹³

Without monitoring and reporting requirements based on NALs, the Copermittees will be no closer to controlling sources of non-storm water pollution, as the CWA requires. For these reasons, and consistent with the Board’s findings that the permit provisions are exclusively based on federal law, the NALs and implementing provisions in the 2010 Permit are necessary to meet federal requirements. The Commission should give

¹⁰⁹ 55 Fed. Reg. 47990, 47995 and 48037.

¹¹⁰ CWA § 301(a).

¹¹¹ U.S. EPA Comment Letter, September 7, 2010, p. 2.

¹¹² U.S. EPA Comment Letter on Draft San Diego Regional MS4 Permit (Order R9-2013-0001) January 11, 2013, p. 5.

¹¹³ U.S. EPA Comment Letter to Santa Ana Water Board, June 20, 2014, p. 2.

significant weight to the Board's determinations and defer to its findings under *Department of Finance*.

There is No New Program or Higher Level of Service

As described above in the General Responses above, the federal standard requiring prohibition of most non-storm water discharges to MS4s has been in place for decades. The NALs provisions are designed to help achieve compliance with the federal standard--not to impose a new program or even require a higher level of service. The level of service is the same as has been required and expected of Copermitees in prior permits. And like the 2010 Permit, the prior permit contained specific non-storm water or dry-weather monitoring and follow-up requirements.¹¹⁴

Other Mandates Exceptions Also Apply

In addition, the challenged provisions are not reimbursable because other mandates exceptions apply. The NALs are based on water quality exceedance information provided by the Copermitees. Claimants also proposed a similar process in their Report of Waste Discharge. The Report of Waste Discharge proposed inclusion of Municipal Action Levels or MALs "for appropriate metrics to ensure a minimum level of program implementation and identify shortcomings that could affect the Permittee's progress toward the established goals. The MALs would not be permit compliance measures, but triggers for further Permittee evaluation of the affected compliance program."¹¹⁵ Finally, as discussed in General Responses, above, Copermitees can raise fees or otherwise fund the NALs provisions and have not demonstrated they are not required to use tax monies to implement these provisions. For all of these reasons, the Commission should find the challenged provisions are not state mandates subject to subvention.

C. Requirement to Meet Storm Water Action Levels or "SALs" (Directive D)

Claimants challenge the 2010 Permit requirements, including associated monitoring and reporting requirements, to implement Storm Water Action Levels (SALs) as exceeding federal law. The SALs provisions are, as the San Diego Water Board determined, necessary to meet the maximum extent practicable standard.¹¹⁶ Moreover, the directive to consider exceedances of SALs does not impose a new program or higher level of service on Copermitees. The Commission should conclude that activities to comply with Directive D are not state mandates subject to subvention.

¹¹⁴ See Prior Permit (Order No. R9-2004-001), e.g., Directive B.1., ["Each permittee shall effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate NPDES permit or authorized in accordance with Requirements B.2. and B.3 below.], Directive B.4, "Each Permittee shall examine its Illicit Discharge Monitoring results . . . to identify water quality problems which may be the result of any non-prohibited discharge category(ies) listed above in Requirement B.2. Follow-up investigations shall be conducted as necessary to identify and control . . . [.]" and Directive J.4., "Each Permittee shall develop numeric criteria in accordance with section II.B.3 of the MRP to determine when follow-up actions will be necessary."

¹¹⁵ Report of Waste Discharge, January 15, 2009, Section 6.1.2, p. 30.

¹¹⁶ 2010 Permit, Fact Sheet, Finding D.1.h, p. 67.

Directive D Was Necessary to Meet the MEP Standard

Directive D requires the Copermitees to “implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water from the permitted areas so as not to exceed the SALs. Exceedance of SALs may indicate inadequacy of programmatic measures and BMPs required in this Order.”¹¹⁷ As in prior permits, Copermitees are required to comply with water quality standards and to control pollutants in storm water discharges to the MEP. They remain required “through timely implementation of control measures and other actions to reduce pollutants in storm water discharges.”¹¹⁸ Contrary to Claimants’ assertions, SALs, like NALs, do not exceed the requirements of federal law, but instead are required in this case to encourage the Copermitees to take appropriate measures to control of pollutants in storm water to the maximum extent practicable standard.

Claimants assert that SALs are similar to “‘strict’ numeric effluent limits” because they are “‘tied to achieving compliance with specific numeric limits.’”¹¹⁹ The Water Boards disagree. Exceedances of SALs are not violations of the 2010 Permit. Instead, the purpose of SALs is to aid the Copermitees in evaluating implemented programs and the effectiveness of BMPs in reducing pollutants in storm water discharges to the MEP. The 2010 Permit states “SALs are not a numeric effluent limitation, which is reflected in language which clarifies an excursion above a SAL does not create a presumption that MEP is not being met. Instead, a SAL exceedance is to be used by the Copermitee as an indication that the MS4 storm water discharge point is a definitive ‘bad actor,’ and the result from the monitoring needs to be considered as part of the iterative process for reducing pollutants in storm water to the MEP.”¹²⁰ The purpose of monitoring for SALs exceedances is to “aid in the evaluation of implemented programs and BMPs in reducing pollutants in storm water discharges to the MEP. . . . Copermitees can utilize SAL results to determine the effectiveness of BMPs on the effluent from a particular areas of the MS4.”¹²¹ The San Diego Water Board also found SALs necessary as follows:

Copermitees have been accorded 20 years to research, develop, and deploy BMPs that are capable of reducing storm water discharges from the MS4 to levels represented in SALs. Storm Water Action Levels are set at such a level that any exceedance of a SAL will clearly indicate BMPs being implemented are insufficient to protect the Beneficial Uses of waters of the State. Copermitee[s] shall utilize the exceedance information as a high priority consideration when adjusting and executing annual work plans, as required by this Permit.¹²²

¹¹⁷ 2010 Permit, Finding D.1.h, p. 8.

¹¹⁸ 2010 Permit, Directive A.3.a, p. 18.

¹¹⁹ Test Claim, Narrative Statement, Section 5, p. 25.

¹²⁰ 2010 Permit, Fact Sheet, Finding D.1.h., p. 67.

¹²¹ 2010 Permit, Fact Sheet, Finding D.1.h., p. 69.

¹²² *Id.*, p. 68.

The provisions implementing SALs are, as the San Diego Water Board found, necessary to meet MEP.

The San Diego Water Board's determination in Finding E.6 that the 2010 Permit, including Directive G, is based exclusively on federal law is reinforced by U.S.EPA guidance¹²³ and testimony supporting use of action levels in MS4 permits. With specific reference to the 2010 Permit, U.S. EPA supported the SALs because they help clarify the term "MEP" and "would be consistent with our goal of including more measurable and enforceable requirements in MS4 permits."¹²⁴ U.S. EPA also offered oral testimony at the adoption hearing for the 2009 Orange County Permit supporting incorporation of SALs¹²⁵ in similar circumstances and recommended to the Santa Ana Water Board that it also incorporate SALs (as well as NALs) in an northern Orange County permit.¹²⁶ As discussed above in the General Responses, the San Diego Water Board's findings concerning the basis for these provisions are entitled to deference under *Department of Finance*. For these reasons, the provisions are part of a federal, not a state, mandate and the Commission should give significant weight to the San Diego Water Board's conclusion that these provisions are required by federal law.

Not a New Program or Higher Level of Service

If the Commission finds that the provisions exceed federal law, they are nonetheless nonreimbursable. The directive to implement SALs is not a new program or higher level of service. The San Diego Water Board determined that SALs are necessary to achieve the decades-old federal standard applicable to municipal storm water discharges. As in prior permits, Copermittees are required to comply with water quality standards and to control pollutants in storm water discharges to the MEP. They remain required "through timely implementation of control measures and other actions to reduce pollutants in storm water discharges."¹²⁷ The requirement is consistent with federal application requirements that copermittees submit with their application package a "comprehensive planning process . . . to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate."¹²⁸ For these reasons, SALs provisions do not constitute a new program or higher level of service.

¹²³ 61 Fed. Reg. 41698, Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits.

¹²⁴ U.S. EPA Comment Letter, September 7, 2009, p. 3; see also U.S.EPA Comment Letter on 2009 Orange County Permit, September 28, 2009, p. 3.

¹²⁵ See Oral Testimony of John Kemmerer, Nov. 18, 2009 (Orange County, Order No. R9-2009-0001) (Tr., p. 97).

¹²⁶ U.S. EPA letter to Santa Ana Water Board, June 20, 2014. ("[T]he Permit should be revised to include action levels as part of the permits monitoring and reporting program. . . . The goal of including both non-stormwater and stormwater action levels is to guide implementation efforts and measure progress towards the protection of water quality and [designated] beneficial uses of the state from adverse impacts caused or contributed to by MS4 discharges.")

¹²⁷ 2010 Permit, Directive A.3.a, p. 18.

¹²⁸ 40 C.F.R. § 122.26(d)(2)(iv).

Other Mandates Exceptions Also Apply

Moreover, as discussed in General Responses, above, Claimants can raise fees to pay for the implementation of these provisions. They have not demonstrated that they are required to spend tax monies on these provisions. And to the extent activities are found to exceed federal law requirements, incremental costs would be *de minimis*. For all these reasons, the Commission should find the provisions are not state mandates subject to subvention.

D. Priority Development Project and Hydromodification Requirements (Directives F.1.d and F.1.h)

Claimants generally challenge the 2010 Permit implementation requirements for hydromodification management and low impact development (LID) best management practices for Priority Development Projects (PDPs). Specifically, Claimants contend that the requirement to develop and implement a program requiring PDPs to implement LID BMPs (F.1.d.(4)) and to develop and implement an LID BMP waiver program (Directive F.1.d.(7)) are unfunded state mandates. They also contend the requirement in Directive F.1.h to implement hydromodification requirements for PDPs likewise is an unfunded state mandate.¹²⁹

The Priority Development Project and Hydromodification Requirements are Necessary to Meet MEP

The San Diego Water Board found the challenged provisions are based exclusively on federal law and that the land development provisions are necessary to reduce the discharge of pollutants in storm water the MEP.¹³⁰ As with most other challenged provisions, the hydromodification and LID provisions, as components of the jurisdictional runoff management program, are required for the purpose of reducing the discharge of storm water pollutants from the MS4 to the MEP.¹³¹ As specified in CWA section 402(p)(3)(B)(iii), permits for discharges from municipal storm sewers “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods”¹³² Applicable regulations require that applicants propose management programs “to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate” and further require municipalities to “implement controls to reduce pollutants in storm water runoff from new development and significant redevelopment.”¹³³

¹²⁹ Claimants suggest that the Commission’s challenged statement of decision in 07-TC-09 as determinative of their arguments. As the Commission is aware, judicial challenges to the statement of decision are not yet resolved.

¹³⁰ 2010 Permit, Finding E.6 and Finding D.1.a. See also discussion above in Introduction and General Responses.

¹³¹ 2010 Permit, Directive F.1.

¹³² CWA 402(p)(3)(B)(iii).

¹³³ 40 C.F.R. § 122.26(d)(2)(iv)(2).

Findings in Section D of the 2010 Permit elaborate on the water quality problems caused by land development and urbanization and emphasize the need for controls such as hydromodification and LID provisions in meeting the MEP standard. For example:

Increasing the volume, velocity, frequency and discharge duration of storm water runoff from developed areas will eventually greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume while simultaneously increasing impervious area. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by natural vegetated soil.¹³⁴

LID BMPs are necessary to address related water quality problems:

Use of Low-Impact Development (LID) site design BMPs at new development, redevelopment and retrofit projects can be an effective means for minimizing the impact of storm water runoff discharges from the development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff. Current runoff management, knowledge, practices and technology have resulted in the use of LID BMPs as an acceptable means of meeting the storm water MEP standard.¹³⁵

Consistent with U.S. EPA guidance recognizing the importance of addressing hydromodification and LID in MS4 permits,¹³⁶ the federal agency's extensive comments during the permit development and issuance process endorse inclusion of these controls. U.S. EPA wrote: "We have focused most of our attention on requirements related to low impact development (LID) and TMDL implementation, given the potential environmental benefits to be derived from these particular components of the stormwater permit program."¹³⁷ With regard to hydromodification requirements, U.S. EPA "would encourage the [San Diego Water Board] to retain these requirements in the final permit. The proposed requirements in the Riverside County permit are similar to requirements in other recently-adopted Southern California MS4 permits, and the requirements will further the objectives of the LID provisions in the permit."¹³⁸ With regard to the 2009 Orange County permit's comparable requirements, U.S. EPA stated: "We are pleased to

¹³⁴ 2010 Permit, Finding D.2.g., Fact Sheet, p. 75 and see also e.g., Finding D.2.e, "As with other land uses, LID site design, source control, and treatment control BMPs are needed at industrial sites in order to meet the MEP standard."

¹³⁵ 2010 Permit, Finding D.2.c; see also Findings C.10 and C.11.

¹³⁶ See 2010 Permit, Fact Sheet, Finding D.2.c.

¹³⁷ U.S. EPA Comments, September 7, 2010, p. 1.

¹³⁸ *Id.*, p. 3.

see the draft permit continues to include requirements related to hydromodification, and that clear, measurable requirements are included to address the issue. We believe the requirements are fully supported in the fact sheet and are consistent with the requirements of other recent MS4 permits in California.¹³⁹ U.S. EPA made similar comments in other southern California permit proceedings.¹⁴⁰

Testimony by U.S. EPA during the public hearing in November 2009 in the southern Orange County MS4 proceeding is equally supportive of inclusion of LID and hydromodification requirements to implement federal law as set forth in the 2010 Riverside Permit. On behalf of U.S. EPA, Mr. Kemmerer testified:

[W]e believe that the permit being proposed for adoption today is among the best of the renewed permits across the State of California and there are several specific aspects that I want to highlight and commend in the permit. First are the low-impact development provisions. And these really are clear, measurable and enforceful [sic] requirements consistent with the basic approach that are taken by the Santa Ana board for the northern portion of Orange County. . . . Both permits require the use of these [sic] LID to retain a specified volume of stormwater, the volume is the same in both permits based on the definition of the capture volume. And we really see this as consistent with both the Orange County permit and other permits that are being adopted around the State. And I really believe that these provisions provide a valuable framework for reducing pollution at the source and ensuring – in order to protect water quality. You've heard a lot of other benefits about L.I.D for groundwater conservation. And for reducing our reliance on importing water from Northern California. I guess I can't really overemphasize the importance of incorporating these L.I.D. provisions in the permit.¹⁴¹

As stated previously, U.S. EPA's views on what federal law requires is entitled to considerable deference. And its views are fully consistent with the reasons considered by the San Diego Water Board when it determined that these provisions are based exclusively on federal law and necessary to meet the MEP standard.

In 2008, the State of Washington, Washington Pollution Control Hearings Board (PCHB) issued a decision addressing a Phase I MS4 permit that included provisions to promote, but not require, implementation of LID.¹⁴² The PCHB considered LID and found that the permit failed to satisfy the federal MEP standard and Washington state law because it

¹³⁹ U.S. EPA Comment Letter, September 28, 2009, p. 4.

¹⁴⁰ *Id.*, pp. 1-2 and see U.S. EPA Comment Letter in 2009 Orange County MS4 proceeding, May 14, 2009, p. 2.

¹⁴¹ U.S. EPA, Kemmerer Testimony, Nov. 18, 2009 (Orange County, Order No. R9-2009-0002), (Hrg. Tr., pp. 94-95).

¹⁴² State of Washington, Pollution Control Hearing Board, Findings of Fact, Conclusions of Law and Order, Puget Soundkeeper Alliance, et al. v. State of Washington, Department of Ecology, PCHB Nos. 07-21, et al, August 7, 2008.

only included provisions to promote LID, but did not require LID at the parcel and subdivision level.¹⁴³ The PCHB decision lends further support for the Board's determination to include LID provisions to implement the MEP standard. The Commission should defer to the San Diego Water Board's determination that the provisions are necessary to meet the MEP standard and find that the challenged provisions are federal mandates.

Not a New Program or Higher Level of Service.

Even if the Commission were to find that the HMP and LID provisions are not required by or exceed federal law, the provisions do not impose a new program or higher level of service. The challenged requirements are laid out in greater detail, but the preceding permit also contained numerous requirements directed at minimizing the effects of hydromodification through creation of impervious surfaces, avoiding development of areas particularly susceptible to erosion and sediment loss, requiring developers to maximize infiltration, provide retention, slow runoff and control post-development urban runoff discharge velocities, rates and volumes.¹⁴⁴ Claimants were previously directed to "develop numeric criteria to ensure that discharges from Priority Development Projects maintain or reduce pre-development downstream erosion and protect stream habitat. At a minimum, numeric criteria shall be developed to control urban runoff discharge velocities, volumes, durations, and peak rates in order to maintain or reduce pre-development downstream erosion and protect stream habitat."¹⁴⁵ Thus, these are not new programs or higher levels of service but instead are at most refinements to the prior permit designed to aid Copermittees in achieving the MEP standard.

Other Mandates Exceptions Also Apply

In addition, as documented in the 2010 Permit Fact Sheet, the Copermittees themselves recognized the need to incorporate LID design concepts in their BMP design handbook.¹⁴⁶ As noted in the Permit Fact Sheet, the hydromodification requirements are based on the findings and recommendations of the Riverside County Storm Water Program in their 2009 Report of Waste Discharge. "As committed to in the 2004 WQMP (now Appendix O to the Riverside County DAMP), the Permittees have developed numeric guidance for hydromodification and are now working with SCCWRP to develop enhanced hydromodification guidance for Southern California. The Permittees will use the completed guidance to update the WQMP, BMP Design Handbook and other guidance as necessary to effectively mitigate hydromodification impacts."¹⁴⁷ Their recommendations helped form the basis for the hydromodification findings which flesh out prior requirements.

¹⁴³ *Id.*, Conclusion of Law No. 17, p. 58.

¹⁴⁴ 2004 Riverside County Permit, Order No. R9-2004-001, e.g., Directive F.1(a),(d) and (f) and Directive F.2.(a).

¹⁴⁵ *Id.*, Directive F.1.(b).(9).

¹⁴⁶ See 2010 Permit Fact Sheet, Directive F.1.d.(4), pp. 130-134 and ROWD (January 15, 2009), section 7.2.2.1 "The Permittees will revise the Riverside County Storm Water Quality Best Management Practice Design Handbook to (1) better incorporate LID design concepts, and (2) incorporate guidance to describe how developments can offset Treatment Control and hydromodification impacts with LID concepts including infiltration, evapo-transpiration, reuse, onsite stormwater management."

¹⁴⁷ See e.g., ROWD, § 7.2.2.2, p. 49.

Finally, as discussed above in the General Responses, Claimants have fee authority to fund the LID and hydromodification requirements and cannot establish that they must raise tax monies in order to comply. Claimants may recover the costs of implementing these requirements through development or other fees. Claimants are not subject to the substantive LID and hydromodification provisions unless they are also undertaking a Priority Development Project.¹⁴⁸ In this latter case, the costs to comply with the provisions are voluntary and not subject to subvention.

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

E. BMP Maintenance Tracking Requirements (Directive F.1.f)

Claimants challenge the permit provision requiring Copermittees to develop and implement a watershed-based database to track projects with a final approved SSMP and structural BMPs. Contrary to Claimants' assertion, the requirement implements and is necessary to meet the MEP standard mandated in federal law and other mandates exceptions also apply.

The BMP Maintenance Tracking Requirements are Necessary to Meet the MEP Standard

The BMP maintenance tracking requirement is integral to the successful implementation of runoff management programs that must be continually assessed, modified and improved upon, in order to achieve the evolving federal MEP standard.¹⁴⁹ As discussed above, the Clean Water Act provides that permits for MS4s "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, . . ." ¹⁵⁰ Applicable federal regulations require Copermittees to implement controls to reduce pollutants in storm water runoff from new development and significant redevelopment, construction, and commercial, industrial and municipal land uses or activities. Prevention of illicit discharges is also required.¹⁵¹ They also require that MS4 operators submit reports that include, among other things, "[t]he status of implementing the components of the storm water management program that are

¹⁴⁸ If a Claimant is also developing a project, it subjects itself to the hydromodification requirements voluntarily.

¹⁴⁹ 2010 Permit, Finding D.1.a.

¹⁵⁰ CWA § 402(p)(3)(B)(iii).

¹⁵¹ 40 C.F.R. § 122.26(d)(2)(iv)(A)-(D).

established as permit conditions.”¹⁵² BMPs are integral to these federal law requirements. The San Diego Water Board explained the applicable Clean Water Act requirements, in part, as follows:

Under CWA section 402(p), municipalities are required to reduce the discharge of storm water pollutants from their MS4s to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard that municipalities must attain. The MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling storm water runoff continues to evolve, so does that which constitutes MEP. Reducing the discharge of storm water pollutants to the MEP requires Copermittees to assess each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP. . . . To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive.¹⁵³

Maintenance tracking is essential to improving the effectiveness of BMP requirements. Federal regulations direct tracking and reporting of “[t]he status of implementing the components of the storm water management program that are established as permit conditions;” “[a] summary of data, including monitoring data, that is accumulated throughout the reporting year;” and “[a] summary describing the number and nature of enforcement actions, inspections, and public education programs,” among others.¹⁵⁴ Tracking inspections of BMPs is an approach consistent with U.S. EPA guidance:

Creating an inventory of post-construction structural stormwater control measures, including tracking of specific information, will first enable Permittees to know what control measures they are responsible for. Without this information, the permittee will not be protecting water quality to their full potential since inspections, maintenance, and follow-up changes cannot be performed. Tracking information such as latitude/longitude, maintenance and inspection requirements and follow-up will allow the permittee to be able to better allocate their resources for those activities that are immediately necessary¹⁵⁵

U.S. EPA further recommends:

Permit writers should clearly specify requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as

¹⁵² *Id.*, § 122.26(a)(1)(v)(1).

¹⁵³ 2010 Permit, Finding D.1.a. and Fact Sheet discussion, pp. 55-57.

¹⁵⁴ 40 C.F.R. 122.42(c), (1), (4) and (6).

¹⁵⁵ MS4 Permit Improvement Guide, pp. 64-66.

installing them in the first place. By having specific requirements, Permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning.¹⁵⁶

For the above reasons, together with the San Diego Water Board's finding that the provisions in the permit are based exclusively on federal law, the Commission should find that these provisions are required by federal law and defer to the San Diego Water Board's determination that they are necessary to meet the federal MEP standard.

Other Mandates Exceptions Also Apply

If the Commission nonetheless finds that the provisions exceed federal law, the provisions are not reimbursable because other mandates exceptions apply. First, in their 2009 Report of Waste Discharge, Copermitees proposed an approach for inspecting and/or verifying maintenance of treatment control BMPs implemented for PDPs to ensure effectiveness, among other things.¹⁵⁷ Moreover, Copermitees have authority to raise fees to pay for the BMP maintenance tracking. They have not shown that they must raise tax monies to pay for these costs. To the extent the Commission finds that the requirement to keep track of the BMPs implemented to comply with the federal MEP standard exceed federal law, the Water Boards would expect the associated costs to be *de minimis*. For these reasons, the Commission should find that the challenged provisions are not state mandates subject to subvention.

F. Construction Site Requirements (Directives F.2.d and F.2.e)

Claimants contend that two Permit provisions affecting certain construction sites are unfunded state mandates requiring reimbursement. First, Claimants challenge the directive that each Copermitee require implementation of Active/Passive Sediment Treatment (AST) at construction sites they determine to be "an exceptional risk to water quality" (including at their own sites, if applicable) (Provision F.2.d). Second, Claimants challenge the directive that Claimants review monitoring results if a construction site it is inspecting has monitored its runoff.

The Directives to Implement AST and to Review Available Monitoring Data Are Necessary to Meet the Federal MEP Standard

The two challenged provisions are necessary to implement the MEP standard as it pertains to land development and construction activities addressed by the 2010 Permit. The San Diego Water Board found that "Runoff needs to be addressed during the three major phases of urban development (planning, construction, and use) in order to reduce the discharge of pollutants from storm water to the MEP Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters."¹⁵⁸ The requirements are clearly founded in federal storm water regulations that require municipalities to implement controls to reduce pollutants in storm water runoff from new development and construction activities.

¹⁵⁶ *Id.* at pp. 63-64.

¹⁵⁷ ROWD, section 7.2.2.6, pp. 50-51.

¹⁵⁸ 2010 Permit, Finding D.1.f.

(122.26(d)(2)(iv)(A-D).) And, as noted by U.S. EPA in its 2000 Phase II Storm Water Regulations, the federal regulations place responsibility on municipalities to control runoff from third party activities and land uses to their MS4.¹⁵⁹

Additional findings demonstrate that the challenged provisions are necessary to meet the MEP standard. For example, the San Diego Water Board noted: "Enforcement of local runoff related ordinances, permits, and plans is an essential component of every runoff management program and is specifically required in the federal storm water regulations and this Order."¹⁶⁰ The San Diego Water Board also recognized that the obligation to control discharges of pollutants associated with land development to the MS4 is appropriately required of municipalities due to their land use authority. "The ultimate responsibility for pollutant discharges, increased runoff, and inevitable long-term water quality degradation that result from development lies with local governments [with authority to control and authorize development]."¹⁶¹

The San Diego Water Board's findings that the AST provisions are necessary to meet MEP are extensive:

For sites that are identified as exceptional threat to water quality, active/passive sediment treatment (AST) is required to be implemented in addition to the minimum set and/or enhanced sediment control BMPs. AST is required at construction sites that are identified by the Copermittees as an exceptional threat to water quality due to high turbidity or suspended sediment levels in the site's effluent even when other sediment control BMPs have been implemented. In cases where the Copermittee's designated minimum set of BMPs and/or enhanced BMPs are not able or expected to be able to reduce turbidity or suspended sediment levels to a level that will be protective of water quality, *AST is necessary and is considered MEP for the discharges from these sites.*¹⁶²

The Board also determined: "To ensure the MEP standard and water quality standards are met, the requirement for implementation of AST at exceptional threat construction sites has been added to the Order, while still providing sufficient flexibility for each Copermittee's unique program."¹⁶³

Moreover, the monitoring data inspection requirement falls under the federal regulations that require permittees to: "[c]ontrol through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial

¹⁵⁹ Phase II Storm Water Regulations, 64 Fed. Reg. 68,722; 40 CFR § 122.26(b)(15)(i). See also, USEPA 1992, Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

¹⁶⁰ 2010 Permit, Finding D.3.f.

¹⁶¹ 2010 Permit Fact Sheet, Finding D.1.f.

¹⁶² 2010 Permit Fact Sheet, Directive F.2.d, pp. 146-148 (emphasis added).

¹⁶³ 2010 Permit, Fact Sheet, Directive F.2.d., p. 147.

activity.”¹⁶⁴ Construction activity is a subset of industrial activity but is treated separately in the storm water permit.¹⁶⁵ In addition, the Board found that “inspections provide a necessary means for the Copermitees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements.” Finally, the requirement that inspections also include review of available discharge monitoring data appears to fall squarely within the federal reporting requirement applicable to Claimants.¹⁶⁶

The San Diego Water Board’s extensive discussion and bases for finding that the challenged provisions are necessary to meet MEP are entitled to deference under *Department of Finance*.

Not a New Program or Higher Level of Service

Even if the Commission finds that the challenged provisions are not federal mandates, they also are not unfunded state mandates because they do not impose new programs or higher levels of service on Claimants. Although the specific challenged provisions were not contained in the prior permit, it contained numerous requirements directing Claimants to control pollutants in discharges of runoff associated with industrial and construction activity and to require construction sites to comply with construction and grading ordinances and permits. Among other things, the 2004 Permit required permittees to conduct construction site inspections for compliance with local ordinances and permits within their geographic area.¹⁶⁷

With regard to heightened BMP requirements for sites near sensitive waterbodies, the 2004 permit directed that permittees require construction sites to implement additional controls at sites near or adjacent to sensitive waters (such as those on the 303(d) list impaired for sediment).¹⁶⁸ The requirement to implement AST for sediment at construction sites Copermitees determine to pose an exceptional threat to water quality, taking into consideration the sensitivity of receiving waters and proximity to receiving waters, as well as the proximity and sensitivity of aquatic threatened and endangered species, merely builds this requirement. Providing factors for copermitees to consider in determining whether a construction site is an exceptional threat to water quality generates more information to assist in making the determination and arguably results in lesser, rather than greater, effort to perform.

With regard to the requirement to review monitoring results, where available, at construction sites, the prior permit also required, among other things, permittees to conduct construction site inspections for compliance with its local grading and storm water ordinances and permits¹⁶⁹ and to carry out inspections, surveillance and monitoring necessary to determine compliance with local ordinances and permits.¹⁷⁰ To the extent these requirements for inspection and monitoring included evaluation of existing monitoring data collected by construction site owners or

¹⁶⁴ 40 C.F.R. 122.26(d)(2)(i)(A).

¹⁶⁵ *Id.*, at § 122.26(b)(14)(x).

¹⁶⁶ *Id.*, at § 122.42(c). This section provides that operators of large or medium MS4s “must submit an annual report by the anniversary date of the issuance of the permit for such system. The report shall include: . . .”(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year.”

¹⁶⁷ See Order No. R9-2004-001, Dir. G.6.a.

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

¹⁷⁰ *Id.*, Dir. D.1.g.

operators, the 2010 Permit's challenged provision does not impose either a new program or higher level of service.

Claimants make the additional but related argument that the requirement to review monitoring results is a new program because the state has shifted the costs of the review requirement from the San Diego Water Board to the Copermitees. This is not the case. The 2010 Permit does not require inspection of construction sites for compliance with the Statewide Construction General Storm Water Permit (CGP) but instead for compliance with the Copermitees' ordinances and permits. To the extent that a site has monitored runoff and has such data, 2010 Permit requires review of the data during an inspection. Claimants are not required to perform functions otherwise required to be performed by the San Diego Water Board staff. No functions and therefore no costs were shifted from the San Diego Water Board to Claimants.

Other Mandates Exceptions Also Apply

Finally, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. To the extent they are subject to the AST requirements for any municipal projects, the projects are voluntary and any associated costs must be discounted. Moreover, the costs for associated activities are *de minimis*. For all these reasons, and for the reasons discussed in the General Responses, above, the Commission should find that no subvention is required for these construction site related requirements.

G. Unpaved Roads BMP Requirements (Directives F.1.i and F.3.a.10)

Claimants contend that the 2010 Permit's provisions directed at controlling erosion and sediment discharges from unpaved roads exceed federal law and impose new programs or higher levels of service on Claimants.¹⁷¹ The challenged provisions require implementation of specified minimum BMPs, or "alternative BMPs that are equally effective[.]" during the development and maintenance of copermitee-maintained unpaved roads.

The Unpaved Roads Discharges Provisions Are Necessary to Meet the Federal MEP Standard

As discussed in the Permit (Finding D.1.c), design and source control BMPs for unpaved roads are needed to minimize the discharge of sediment to the MS4s and receiving waters, implementing the federal mandate to control pollutants in storm water discharges to the MEP. The challenged provisions fall within the Development Planning Component of the Permit supported by the San Diego Water Board's finding that "[r]unoff needs to be addressed during the three major phases of urban development (planning, construction and use) in order to reduce the discharge of pollutants from storm water to the MEP"¹⁷² The requirement to

¹⁷¹ Claimants also argue that the provisions were imposed solely under state law to the extent they require control of discharges of sediment from roads that do not qualify as MS4s or do not discharge into MS4s. (Narrative Statement, p. 42.) This argument disregards the basis of the permit is to regulate the discharges of pollutants in storm water into and from MS4s and to implement the prohibition on non-storm water discharges into MS4s and is issued to Claimants as owners and operators of MS4s. (See, e.g., 2010 Permit, Findings A and B.) To the extent the challenged provision is susceptible to the interpretation of unlimited applicability to roads with no potential conveyance to an MS4 Claimants ascribe to it, that interpretation is unsupported by the overarching purpose of and legal basis for issuing an MS4 permit to Claimants.

¹⁷² 2010 Permit, Finding D.1.f.

implement BMPs during development and maintenance of copermittee-maintained unpaved roads is necessary to implement this federal requirement, consistent with the San Diego Water Board's finding that:

[c]onstruction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment in receiving waters. Existing development generates substantial pollutant loads which are discharged in runoff to receiving waters.¹⁷³

The Board concluded that "[e]rosion of unpaved roadways occurs when soil particles are loosened and carried away from the roadway base, ditch or road bank by water"¹⁷⁴

Maintenance of developed unpaved roads pose the same risks and in fact were specifically identified in the 2010 Permit because of complaints and investigations regarding sediment discharges from unpaved roads causing water quality problems within Riverside County during the prior permit time period.¹⁷⁵ In finding the provisions necessary to meet MEP, the Board concluded: "Implementing design and other source control BMPs for unpaved roads in the region is necessary to reduce and minimize the impacts of sediment discharged during storm events from unpaved roads to the MS4s and receiving waters."¹⁷⁶ The unpaved roads BMP requirements are an essential component of the storm water management programs required to include "controls to reduce the discharge of pollutants to the maximum extent practicable (MEP)" set forth in the federal regulations.¹⁷⁷

U.S. EPA has also recognized the significant threat to water quality posed by discharges from unpaved roads and guidance emphasizes the threat as follows: "Dirt and gravel roads are a major potential source of these pollutants [sediment] and pollutants that bind to sediment such as oils, nutrients, pesticides, herbicides, and other toxic substances]. Many roads have unstable surfaces and bases. Roads act like dams, concentrating flows that accelerate erosion of road materials and roadsides. Both unstable surfaces and accelerated erosion then lead to sediment and dust."¹⁷⁸ For these reasons, and the additional reasons in the General Responses, above, the San Diego Water Board's findings that the requirement is necessary to meet the MEP standard are entitled to deference.

Not a New Program or Higher Level of Service

The San Diego Water Board's prior permit issued to Riverside County Copermittees in 2004 contained comparable findings about the need for erosion and sediment controls and implementation of BMPs to mitigate projected increases in pollutant loads and flows associated

¹⁷³ *Ibid.*

¹⁷⁴ *Id.*, Finding D.1.c.

¹⁷⁵ *Ibid.*

¹⁷⁶ *Ibid.*

¹⁷⁷ 40 C.F.R. § 122.26(d)(iv)(a)(2).

¹⁷⁸ U.S. EPA 2006 "Environmentally Sensitive Maintenance for Dirt and Gravel Roads." Gesford and Anderson, USEPA-PA-2005 (referenced in Permit Fact Sheet, Finding D.1.c.)

with development to implement the federal prohibition on discharges from MS4s containing pollutants that have not been reduced to the MEP.¹⁷⁹ The prior permit required implementation of appropriate BMPs during the construction and maintenance of unpaved roads but the applicability to unpaved roads was made explicit in the 2010 Permit as a result of inspections and complaints made during the 2004 permit time period.¹⁸⁰ Because unpaved roads were already subject to the requirements to implement appropriate BMPs to reduce pollutants in storm water discharges to the MS4s to the MEP, although not specified by name, these provisions do not impose a new program or higher level of service.

Other Mandates Exceptions Also Apply

If the Commission nonetheless finds that the provisions exceed federal law and impose a new program or higher level of service, the provisions are not state mandates subject to subvention because other mandates exceptions apply. Copermittees have authority to raise fees to pay for requiring implementation of BMPs during road construction and for maintenance of copermittee-maintained roads. They have not shown that they must raise tax monies to pay for these costs. Moreover, to the extent the provisions result in activities beyond those in the prior order, any necessary costs of compliance are *de minimis*. For these reasons, and for the reasons discussed in the General Responses, above, the Commission should find that the challenged provisions are not state mandates subject to subvention.

H. Industrial/Commercial Inspection Requirement (Directive F.3.b.4(a)(ii))

Claimants contend that the 2010 Permit provision requiring review of industrial or commercial facility monitoring data if the site monitors its runoff as part of the copermittees' inspection procedures is a state mandate because the requirement could be performed by the San Diego Water Board under the Statewide Industrial General Permit. Claimants contend that even if there is an underlying federal requirement supporting this provision, the State has improperly shifted the obligation, for which it collects fees, to the local entities. Water Boards disagree that any obligations, or associated costs, have been shifted from the State to Claimants and assert that the provision is exclusively a federal mandate, required to meet the MEP standard.

The Inspection Requirement Is Necessary to Meet the Federal MEP Standard

Federal law requires the copermittees to reduce pollutants in their storm water discharges to the MEP. The monitoring data inspection requirements for industrial and commercial facilities is supported by the federal regulations that require permittees to: “[c]ontrol through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”¹⁸¹ The requirement to review facility monitoring data results, if the site monitors its runoff, is necessary for copermittees to evaluate whether an industrial or commercial site's implementation of BMPs to control the discharges of pollutants in storm water runoff is effective at meeting the MEP standard.¹⁸² More specifically,

¹⁷⁹ See Order No. R9-2004-001, Directives A.1., A.3, F.1, F.3 and G.5.a(8) “[r]etention of proper management of sediment and other construction pollutants on site.”]

¹⁸⁰ See 2010 Permit, Finding D.1.c.

¹⁸¹ 40 C.F.R. 122.26(d)(2)(i)(A).

¹⁸² See 2010 Permit, Finding D.3.b.

Directive A.1.a, is similarly focused, requiring permittees to “[c]ontrol the contribution of pollutants in discharges of runoff associated with industrial and construction activity to its MS4 and control the quality of runoff from industrial and construction sites.”¹⁸³ If a site’s runoff data demonstrates excessively high levels of pollutants, a copermitee will need to implement better and more effective BMPs to achieve the federal standard. The San Diego Water Board discussed the crucial nature of source identification, which can be facilitated by reviewing runoff monitoring reports, in finding:

Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. It is the first step in a targeted approach to runoff management. Source identification helps identify the location of potential sources of pollutants in runoff. Pollutants found to be present in receiving waters and then be traced to the sites which frequently generate such pollutants. In this manner, source inventories can help to target inspections, monitoring and potential enforcement. This allows for limited inspection, monitoring, and enforcement time to be most effective. USEPA supports source identification as a concept when it recommends construction, municipal, and industrial source identification in guidance and the federal regulations.¹⁸⁴

Finally, the San Diego Water Board found that “inspections provide a necessary means for the Copermitees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements[.]” *a necessary part of the process to achieve MEP*. The San Diego Water Board’s findings are entitled to deference under *Department of Finance*.

Not a New Program or Higher Level of Service

The State has not improperly or freely chosen to shift its own obligations and associated costs to the Claimants to perform monitoring data review as part of municipal inspections. The Industrial General Permit in effect at the time the 2010 permit was adopted (and until it was superseded in 2014) did not require the regional water boards to review monitoring data if sites monitor their runoff. In any event, the regional water boards would inspect a facility for compliance with the Industrial General Permit and not, as required of copermitees, for compliance with the copermitees’ ordinances, permits and the MS4 permit. Claimants have not demonstrated that a shifting of responsibilities and costs has occurred.¹⁸⁵

Moreover, while the specific requirement to review monitoring data, if available, was absent in the prior permit, the federal requirement to reduce pollutants in storm water discharges to the MEP is the same. In addition, the 2004 Permit required that inspections “check for assessment

¹⁸³ 2010 Permit, Directive A.1.a.

¹⁸⁴ 2010 Permit, Fact Sheet, Finding D.3.b. See also USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems (EPA833-B-92-002) and 40 CFR 122.26(d)(2)(ii).

¹⁸⁵ In *Department of Finance*, the Supreme Court upheld the Commission’s finding regarding evidence that the Los Angeles Water Board staff had suggested shifting of responsibilities had occurred. (1 Cal. 5th at 770.) No such evidence is present here.

of BMP implementation, maintenance, and effectiveness; visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff.”¹⁸⁶ While not specifically required in the prior permit, reviewing available monitoring data is wholly consistent with the prior requirements and an effective way to determine whether the existing standard is being met at industrial or commercial facilities. This requirement does not rise to the level necessary to find a new program or higher level service has been imposed.

Other Mandates Exceptions Also Apply

Claimants have not established they must use tax money to pay for the monitoring data review for facilities that monitor their discharge. Second, if the Commission finds that the requirement to review available monitoring data as part of an inspection already being performed is a new program or higher level of service and exceeds federal requirements, any associated incremental costs of performing this function would be *de minimis*. As pointed out in the San Diego Water Board’s responses to comments on the 2010 Permit, including review of monitoring data would not significantly increase inspection times – in fact is expected to take a matter of minutes to review as part of an otherwise required inspection.¹⁸⁷ As discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, and for the additional reasons discussed in General Responses, above, the Commission should find that no subvention is required to include the review of available monitoring data as part of inspections at industrial or commercial sites.

I. Retrofitting Program for Existing Development (Directive F.3.d)

Provision F.3.d requires Copermittees to develop a framework for encouraging projects to retrofit existing development, particularly to serve as source control and treatment control BMPs to reduce pollutants in storm water discharges to the MEP. This provision requires Copermittees to (1) identify and inventory candidate retrofitting projects, (2) evaluate and rank the inventory for prioritization, (3) consider the evaluation in prioritizing work plans for the following year, (4) cooperate with private landowners in encouraging retrofitting projects and (5) track known completed retrofit BMPs and perform inspections on publicly owned properties and privately owned properties, as needed. Claimants argue that the provisions “are analogous to, though more prescriptive than, the inspection and trash receptacle requirements found to be state mandates in the L.A. County permit.”¹⁸⁸ Claimants also argue that nothing in federal law requires copermittees to develop, fund and implement a retrofitting program.¹⁸⁹

The Retrofitting Provisions are Necessary to Meet the Federal MEP Standard

While the storm water regulations do not explicitly require these provisions be included in the permit, the provisions do require development of potential strategies that can result in significant water quality improvements as the Copermittees implement their water quality improvement programs. The provisions flow from the Clean Water Act requirements to control pollutants in discharges to the MEP standard and to effectively prohibit non-storm water discharges to the

¹⁸⁶ 2010 Permit, Fact Sheet, Dir. F.3.b(4).

¹⁸⁷ 2010 Permit, Response to Comment 98.

¹⁸⁸ Test Claim Narrative Statement, p. 47, citing *Department of Finance*, 1 Cal.5th at 770-772.

¹⁸⁹ Test Claim Narrative Statement, p. 46.

MS4s.¹⁹⁰ They also implement the regulatory requirement to address land development controls.¹⁹¹ In developing these challenged requirements, the Board found:

Retrofitting existing development with storm water treatment controls, including LID, is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards. Although SSMP BMPs are required for redevelopment, the current rate of redevelopment will not address water quality problems in a timely manner. Cooperation with private landowners is necessary to effectively identify, implement and maintain retrofit projects for the preservation, restoration, and enhancement of water quality.¹⁹²

Similarly, the San Diego Water Board found:

The goals of the existing development retrofitting program are to address the impacts of existing development through retrofit projects that reduce impacts from hydromodification, promote LID, support riparian and aquatic habitat restoration, *reduce the discharges of storm water pollutants to the MEP, and prevent discharges from the MS4 from causing or contributing to a violation of water quality standards.* Where feasible, at the discretion of the Copermittee, the existing development retrofitting program may be coordinated with flood control projects and other infrastructure improvement projects.¹⁹³

The San Diego Water Board also considered the MS4 Permit Improvement Guide in evaluating the merits of including the retrofitting program in the 2010 permit. Issued by U.S. EPA, the Guide reflects the federal permitting authority's view that retrofitting plans or programs for existing development should be included in storm water programs because, without addressing storm water runoff from existing developments, waters in the region cannot be adequately protected. Although discounted by Claimants as mere guidance with no legal or regulatory effect, the MS4 Permit Improvement Guide, published in 2010, represents the federal permitting authority's views on steps such as retrofitting of existing development that likely are necessary in many areas to achieve the MEP standard. In accord with U.S. EPA's views, the San Diego Water Board found that evidence of 303(d) listings and exceedances of water quality objectives in copermittee monitoring reports indicates that existing BMPs are not sufficient in many cases to meet the MEP standard and protect the beneficial uses of receiving waters.

Implementing more advanced BMPs, including the retrofitting of existing development with LID BMPs, is part of the iterative process. Based on the current rate of redevelopment compared to existing BMPs, the use of LID only on new and redevelopment

¹⁹⁰ CWA, § 402(p)(3)(B)(iii) and (ii).

¹⁹¹ See 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

¹⁹² 2010 Permit, Finding D.3.h.

¹⁹³ 2010 Permit, Directive F.3.d (emphasis added).

will not adequately address current water quality problems, including downstream hydromodification. Retrofitting existing development is practicable for a municipality through a systematic evaluation, prioritization and implementation plan focused in impaired water bodies, pollutants of concern, areas of downstream hydromodification, feasibility and effective communication and cooperation with private property owners. ¶ To actually improve the quality of receiving waters, discharges from existing developed sites need to be mitigated, which generally means implementation of measures to retrofit existing development sites with storm water control measures that can retain and/or treat storm water on site. Retrofitting existing development is possible and reasonable to significantly improve water quality in receiving waters. ¶ Successful retrofitting programs have been implemented in such diverse locations as Seattle, Washington[], Portland, Oregon[], Santa Monica, California[], Kansas City, Kansas[], and Montgomery County Maryland. When appropriately applied as in this Order, *retrofitting existing development meets MEP*.¹⁹⁴

As previously explained, the San Diego Water Board's findings that these provisions are necessary to satisfy the MEP standard and are based entirely on federal law support the determination that they are a federal, not state, mandate and such findings are entitled to deference under *Department of Finance*.¹⁹⁵

Moreover, the Water Boards also observe that U.S. EPA required similar – and in some instances more detailed – requirements to address storm water control opportunities in existing development areas in its most recent MS4 permit issued to the District of Columbia. This federal MS4 Permit requires, among other things, that the District establish a “Retrofit Program” and “implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way,” and the District “shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40[percent] by 2035. . . . The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rates.”¹⁹⁶

The fact that this U.S. EPA-issued permit includes such prescriptive requirements that are likewise absent when compared directly to the text of the implementing storm water regulations evidenced support for the San Diego Water Board's findings that the permit provisions, under

¹⁹⁴ 2010 Permit Fact Sheet, Finding D.3.h (internal citations omitted). See also Center for Watershed Protection, Urban Subwatershed Restoration Manual No. 3, Urban Stormwater Retrofit Practices Manual, Version 1.0, July/August 2007.

¹⁹⁵ Claimants' assertion that the provisions are analogous to and somehow more prescriptive than the inspection and trash receptacle requirements in the Los Angeles Permit considered in *Department of Finance* is misplaced where, as here, the San Diego Water Board determined that the provisions are necessary to meet MEP.

¹⁹⁶ U.S. EPA MS4 Permit DC0000221, issued to District of Columbia, modified October 25, 2012, e.g., section 4.1.5 (Retrofit Program for Existing Discharges) and section 4.1.6 (Tree Canopy).

the factual circumstances of the 2010 Permit, are necessary to meet the MEP standard and are based entirely on federal law. It is notable that U.S. EPA also endorsed inclusion of the retrofitting requirements in this Permit.¹⁹⁷

Not a New Program or Higher Level of Service

In requiring Copermitees to encourage voluntary retrofitting projects, no new program or higher level of service is required. Copermitees are directed to develop a framework to encourage and track voluntary efforts, all of which, if implemented, are intended to assist the permittees to achieve the same federal standards--of controlling pollutants in storm water discharges to the MEP and effectively prohibiting non-storm water discharges – to which permittees have been subject for decades. The retrofitting permit provision does not impose a state mandate.

Other Mandates Exceptions Also Apply

Even if the Commission determines that some aspect of these provisions exceeds federal law, the costs to make these programs available as opportunities for developers would be *de minimis*, and do not entitle Claimants to reimbursement. That Copermitees can, at their discretion, coordinate the retrofitting program with flood control projects and other infrastructure improvement programs lends further support to the conclusion that the costs are *de minimis*. Finally, as discussed above, Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, and for the additional reasons discussed in General Responses, above, the Commission should find that no state mandate exists, but if one is found to exist, should find that subvention of funds is required.

J. Watershed Water Quality Workplan Requirements (Directive G)

Claimants challenge the Permit's requirement that they develop and implement a Watershed Water Quality Workplan set forth in Directive G of the 2010 Permit. Claimants contend that the requirement in its entirety is not required by federal law and the San Diego Water Board imposed it through the exercise of true choice. Claimants also allege that significant differences in the Watershed Workplan requirement exist as compared to the Watershed SWMP in the 2004 permit that it builds upon and that the activities required to implement the Watershed Workplan represent a higher level of service, not just an incremental change from the prior permit. These arguments are addressed in turn, below.

Watershed Water Quality Workplan Requirements Are Part of the Watershed-Based Runoff Programs Necessary to Reduce Pollutant Discharges to Meet the Federal MEP Standard

As discussed in the 2010 Permit, watershed management “provides a means to focus on the most important water quality problems in each watershed . . . to maximize protection of beneficial use in an efficient manner.”¹⁹⁸ The Watershed Workplan requirement was modified from the comparable 2004 permit provision because results from implementation of the 2004 order showed that “lack of specificity in the watershed requirements resulted in inefficient watershed compliance efforts.”¹⁹⁹ As the San Diego Water Board explained in the Fact Sheet:

¹⁹⁷ U.S. EPA Comment Letter, September 7, 2010, p. 3.

¹⁹⁸ 2010 Permit, Finding D.4.a.

¹⁹⁹ 2010 Permit Fact Sheet, pp. 10-11.

Section G requires Copermittees to continue implementation of their watershed runoff management program (WRMP), however the implementation approach has changed. Order No. R9-2004-001 required a Watershed SWMP that included a collaborative strategy to abate the sources and reduce the discharges causing high priority water quality problems. This strategy was to guide each watershed Copermittee's selection and implementation of Watershed Activities, so that the activities selected and implemented would remove that pollutant contribution responsible for the identified high priority water quality problem. Outcomes of these requirements were not able to demonstrate improvements to water quality.²⁰⁰

The San Diego Water Board found Watershed Workplans (together with Individual Storm Water Management Plans) necessary "to guide the Copermittees' runoff management efforts and aid the Copermittees in tracking runoff management program implementation."²⁰¹ Similarly, the Board found that watershed-based runoff management:

Provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems. Watershed-based runoff management that *does not actively reduce pollutant discharges and abate sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of this Order.*²⁰²

Implementation of the iterative process is how Copermittees can demonstrate that they are taking appropriate steps to achieve the MEP standard.

In the 2010 Permit Fact Sheet, the San Diego Water Board established that the Watershed Workplan requirement as part of the required "comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices Proposed management programs shall describe priorities for implementing controls."²⁰³ The Board also noted "[t]he focus of the Order is on development and implementation of storm water programs which meet MEP, rather than creation of Copermittee plans which exhibit MEP."²⁰⁴

²⁰⁰ 2010 Permit Fact Sheet, Directive G.

²⁰¹ 2010 Permit, Finding D.1.d.

²⁰² 2010 Permit, finding D.4.a (emphasis added).

²⁰³ 2010 Permit Fact Sheet, p. 19, quoting 40 C.F.R. § 122.26(d)(2)(iv).

²⁰⁴ 2010 Permit Fact Sheet, Finding D.1.d.

The Commission's findings that the permit requirements are necessary to meet MEP and based exclusively on federal law are entitled to deference.

Not a New Program or Higher Level of Service Compared to the Watershed SWMP Required in the Prior Permit

Even if the Commission concludes that the Watershed Workplan requirements are not federal mandates, the Commission should find that no state mandate exists because no new program or higher level of service has been imposed. Claimants contend the Watershed Workplan directives in the 2010 Permit are "significantly different and more demanding than in the earlier permit" and "represented a significant increase in the actual level and type of activities required of Claimants" and therefore requires a higher level of service.²⁰⁵ The Water Boards disagree with Claimants' characterization.

First, the Watershed Workplan requirements are designed to consolidate watershed planning requirements and help the Copermittees achieve the Clean Water Act's prohibition on discharges of pollutants in storm water that are not controlled to the MEP—the same standard which has applied since 1987-- in a more efficient and effective manner.²⁰⁶ No new program was imposed.

Second, the specific activities Claimants contend are newly mandated were in substantial part already required of permittees in the 2004 Permit. The 2004 Permit's Watershed Storm Water Management Program (SWMP) was carried over in the 2010 Permit with a refocused implementation approach. "Section G requires Copermittees to continue implementation of their watershed runoff management program (WRMP), however the implementation approach has changed."²⁰⁷ As with the 2004 permit, the 2010 Permit "requires the watershed Copermittees to develop and follow a workplan approach towards assessing receiving water body conditions, prioritizing the highest priority water quality problems, implementing effective BMPs, and measuring water quality improvement in the receiving water."²⁰⁸ However, the permit contains greater specificity necessary to demonstrate improvements in water quality (through achievement of the MEP standard). "The San Diego Water Board expects that implementing the Watershed Workplan, which will coordinate the Copermittees' efforts in the watershed, will result in water quality improvements sooner than later."²⁰⁹

Claimants generally characterize these mandated activities as differing from the 2004 Permit in the following ways:

While the 2004 Permit contained a requirement for permittees to develop and implement a Watershed SWMP (2004 Permit, Section K) . . . [s]ignificant differences included the requirement to not only review monitoring data collected under the permit, but also data from 'applicable information available from other public

²⁰⁵ Narrative Statement, p. 51.

²⁰⁶ CWA § 402(p)(3)(b)(iii).

²⁰⁷ 2010 Permit Fact Sheet, Directive G.

²⁰⁸ 2010 Permit Fact Sheet, Directive G.

²⁰⁹ Ibid.

and private organizations;’ to prioritize water quality problems ‘in terms of constituents by locations’ not merely in the watershed generally; to identify likely sources, pollutant discharges and/or other factors causing the highest water quality problems within the watershed, including the requirement to conduct ‘additional focused water quality monitoring to identify specific sources within the watershed;’ to develop a watershed BMP implementation strategy, including a schedule for implementing BMPs to abate specific receiving water quality problems; to develop a strategy to monitor improvements in receiving water quality directly resulting from BMP described in the Watershed Workplan; to ‘pursue efforts to obtain’ interagency agreements with non-permittee MS4s to control contribution of pollutants ‘from one portion of the shared MS4 to another portion of the shared MS4[.]’ (the 2004 Permit only required a description of any such agreements); to offer a 30-day public review and comment period prior to submittal of the Watershed Workplan to the RWQCB; and, to hold an Annual Watershed Review Meeting, open to the public and ‘adequately noticed.’²¹⁰

More specifically, Claimants contend Directive G of the 2010 Permit newly mandates the following specific activities. Following each challenged activity (in italics) is a description of the analogous provision to which permittees were subject in the prior permit:

1. *Characterize watershed receiving water quality, including analyzing monitoring data collected under the 2010 Permit from other public and private organizations;*

While employing some different terminology, these functions are comparable in level of service to what the prior permit required. For example, the prior permit required: “An assessment of the water quality of all receiving waters in the watershed based upon (1) existing water quality data; and (2) results from the Receiving Waters and Illicit Discharge Monitoring Programs described in the MRP” (Dir. K.2.c)); and “An identification and prioritization of major water quality problems in the watershed caused or contributed to by MS4 discharges and the likely source(s) of the problem(s)” (Dir. K.2.d));

Characterizing watershed receiving water quality is comparable to the prior permit’s requirement to assess water quality based on existing and new water quality data as well as identify and prioritize major water quality problems, together with identification of the likely sources of the problems. And the 2004 Permit required appropriate joint watershed management efforts with non-copermittee entities (Dir. K.3), contemplated shared efforts with state agencies, local districts and Native American Tribes (Dir. K.2.b)) and required at least annual assessment of “available water quality data (from the MRP and other *reliable sources*)” (Dir. K.4., emphasis added.) Unless the Copermittees considered other public and private organizations’ water quality monitoring data to be *unreliable*, Claimants were already required to perform the same functions under the prior permit.

²¹⁰ Test Claim, Narrative Statement, pp. 50-51.

2. *Identify and prioritize water quality problems by constituent and by location, giving consideration to total maximum daily loads, waters listed as impaired pursuant to CWA section 303(d), and other pertinent conditions;*

While in some instances employing different terminology, these functions also are comparable in level of service to what the prior permit required. For example, the prior permit required copermitee collaboration “to identify, address, and mitigate the highest priority water quality issue/pollutants in the Upper Santa Margarita Watershed.” (Dir. K.1.) The prior permit also required copermitees to identify and prioritize major water quality problems “and the likely source(s) of the problem(s)” (Dir. K.2.d)) and to assess the water quality of all receiving waters based upon existing data and specific monitoring results. (Dir. K.2.c.) The prior permit also required an implementation time schedule “of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problem(s) identified in Requirement K.2.d.” (Dir. K.2.e.)

Claimants were also previously required to develop short-term and long-term effectiveness assessment strategies, including for short term assessments: “specific direct and indirect performance measurements” and “discuss the role of monitoring data collected by the Permittees in substantiating or refining the assessment” (Dir. K.2.l)) and for long-term assessments, to consider methods such as surveys, pollutant loading estimations, receiving water quality monitoring, and achievement of measurable goals.” (Dir. K.2.m.) Additionally, Claimants also were previously required to develop a map including depiction of CWA section 303(d) impaired receiving waters. (Dir. K.2.a.) Water bodies listed under CWA section 303(d) are listed impaired for specific, identified, constituents. Moreover, the 2010 Permit’s requirement to prioritize water quality conditions by constituent and location requires efforts comparable efforts as the 2004 Permit that required, among other things, permittees to consider existing data and monitoring results to identify likely sources of pollutants and to employ and evaluate the results of short- and long-term effectiveness assessment strategies.

3. *Identify likely sources causing the highest water quality problems within the watershed, including from monitoring conducted under the 2010 Permit and additional focused water quality monitoring to identify specific sources;*

While in some instances employing different terminology, the functions challenged by Claimants are comparable in level of service to what the prior permit required. For example, the prior permit required copermitee collaboration “to identify, address, and mitigate the highest priority water quality issue/pollutants in the Upper Santa Margarita Watershed.” (Dir. K.1.) The prior permit also required copermitees to identify and prioritize major water quality problems “and the likely source(s) of the problem(s)” (Dir. K.2.d)) and to assess the water quality of all receiving waters based upon existing data and specific monitoring results. (Dir. K.2.c.) The prior permit also required an implementation time schedule “of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problem(s) identified in Requirement K.2.d.” (Dir. K.2.e.)

Claimants were also previously required to develop short-term and long-term effectiveness assessment strategies, including for short term assessments: “specific direct and indirect performance measurements” and “discuss the role of monitoring data collected by the Permittees in substantiating or refining the assessment” (Dir. K.2.l)) and for long-term

assessments, to consider methods such as surveys, pollutant loading estimations, receiving water quality monitoring, and achievement of measurable goals.” (Dir. K.2.m.) Claimants also were previously required to develop a map including depiction of CWA section 303(d) impaired receiving waters. (Dir. K.2.a.) Water bodies listed under CWA section 303(d) are listed impaired for specific, identified, constituents. Moreover, the 2010 Permit’s requirement to prioritize water quality conditions by constituent and location requires efforts comparable efforts as the 2004 Permit that required, among other things, permittees to consider existing data and monitoring results to identify likely sources of pollutants and to employ and evaluate the results of short- and long-term effectiveness assessment strategies.

4. *Develop a watershed BMP implementation strategy, including a schedule to implement BMPs to abate specific receiving water quality problems; and Develop a strategy to monitor improvements in receiving water quality stemming from implementation of BMPs described in the Watershed Workplan, including required monitoring in the receiving water*

While employing some different terminology, the prior permit required Claimants to perform a comparable level of service in that the prior permit required copermittée collaboration “to identify, address, and mitigate the highest priority water quality issue/pollutants in the Upper Santa Margarita Watershed.” (Dir. K.1.) The efforts required in the prior permit’s parallel watershed-focused Directive K did not use the phrase Best Management Practices (BMPs) but substantively required the same efforts requiring “identification and prioritization of major water quality problems in the watershed caused or contributed to by MS4 discharges and the likely source(s) of the problem(s)” (Dir. K.2.d) and requiring implementation of a “schedule of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problems . . . ” (Dir. K.2.e) as well as strategies for assessment the effectiveness of the activities, including specific direct and indirect performance measurements. (Dir. K.2.l and K.2.m.)

Other actions required of the permittees in the prior permit also amount to BMPs, such as collaboration of “‘watershed-based’ (i.e., natural resource-based) land use planning with neighboring local governments” (Dir. K.2.g), implementation of a “watershed-based education program” (K.2.f) and “any other urban runoff management programs or activities being conducted collectively by the Permittees to address water quality issues” (Dir. K.2.h.) The provision challenged by Claimants does not impose a new or higher level of service compared to the prior permit.

5. *Establish a schedule for development and implementation of the watershed strategy outlined in the Watershed Workplan, including the holding of annual watershed workplan review meetings open to the public;*

While it used different terminology, the prior permit already required permittees to meet at minimum annually “to review and assess available water quality data . . . assess program effectiveness, and to review and update the Watershed SWMP.” (Dir. K.4.) To the extent the minimum annual meetings of Permittees were not subject to open meeting requirements, the requirement to open the meetings to the public is a new requirement, however any costs associated with opening a staff level meeting to the public, with no additional requirement to respond to any public comments, would be *de minimis*.

6. *Implement the Watershed Workplan within 90 days of submittal unless otherwise directed by the RWQCB;*

The prior permit required implementation of the parallel Watershed SWMP but did not specify that implementation should begin within 90 days of submittal of the SWMP unless directed otherwise. Regardless of the timing of commencement of implementation, Claimants were required to implement the Watershed SWMP under the prior permit sufficiently early to begin implementation of the short-term strategy and to give substance to the at least annual effectiveness assessment. (Dir. K.4.)

7. *Cooperate among permittees to develop and implement the Watershed Workplan, including the requirement to pursue interagency agreements with non-permittee MS4 operators;*

The prior permit required copermittees to “as appropriate, participate in watershed management efforts to address storm water quality issues within the entire Santa Margarita Watershed, including efforts conducted by other entities in the watershed, such as San Diego County, U.S. Marine Corps Base Camp Pendleton, Native American tribes, and other state, federal, and local agencies.” (Dir. K.3.) The prior permit also required that permittees describe any interagency agreements “or other efforts, with non-Permittee owners of the MS4 such as Caltrans, Native American Tribes, and school districts) to control the contribution of pollutants from one portion of the shared MS4 to another portion of the shared MS4.” (Dir. K.2.b). The prior permit anticipated that coordination with other non-permittee MS4 owners/operators was a minimum element of the required Watershed SWMP. (Dir. K.2.)

Coupled with the requirement that the Watershed SWMP would, also at a minimum, require such things as “[a]n assessment of the water quality of all receiving waters in the watershed . . .” (Dir. K.2.c) (emphasis added)), cooperation with other MS4 owners within the watershed, even if not memorialized in an interagency agreement, was already necessitated by the prior permit.

8. *Implement a public participation mechanism within each watershed, including opportunity for public review and comment on the draft Watershed Workplan prior to its submission to the RWQCB;*

To the extent the requirement to allow public participation prior to submittal of a draft Watershed Workplan is new to the 2010 Permit, for purposes of responding to Claimants’ challenge, it is important to note that the 2010 Permit does not *mandate* that Copermittees actually consider or respond to comments on the draft Watershed Workplan,²¹¹ nor does it mandate holding a public meeting at that stage. By its term, it simply mandates that Copermittees make a draft available for public review and comment. To the extent allowing public comment on the draft Watershed Workplan is determined to be a new requirement, any costs associated with making a draft available for public comment, with no additional associated mandated requirements to respond to any public comments or modify the draft, would be *de minimis*.

²¹¹ While evaluation of comments and consideration of revisions based on the comments would give meaning to the public review and comment process, for Test Claim purposes, there is no such mandate in the 2010 Permit.

9. *As part of the review and annual update of the Watershed Workplan, hold an Annual Watershed Review meeting open to the public and adequately noticed.*²¹²

As discussed above, Claimants were previously required to meet at least annually “to review and assess available water quality data (from the MRP and other reliable sources), assess program effectiveness, and to review and update the Watershed SWMP.” (Dir. K.4.) While the earlier provision did not require opening the annual meeting to the public and providing notice of such meeting, such efforts do not impose a new program or even a higher level of service be provided.

It is apparent from a comparison of Directive G to the prior permit’s comparable Directive K that the challenged aspects of Directive G do not actually impose a new program or require provision of a higher level of service. As such, the Commission should find that Directive G is not a state mandate entitling Claimants to subvention of funds.

Other Mandates Exceptions Also Apply

If the Commission determines that Directive G’s provisions do impose a new program or higher level service and that the challenged activities are not mandated by federal law, no reimbursement should be required because associated incremental costs for the 2010 Permit’s requirements would be *de minimis*.²¹³ In addition, Copermittees have fee authority to fund these activities and have not demonstrated they must raise tax monies to comply. For these reasons, and for the additional reasons discussed in the General Responses, above, the Commission should find that no subvention is required for this challenged provision.

K. Requirements Relating to Jurisdictional Urban Runoff Management Plan (JRMP) Annual Report (Provision F.2.a.)

Claimants contend that Provision F.2.a contains requirements that are state mandates subject to reimbursement because the numerous elements required to be included in Copermittees’ JRMP Annual Reports exceed requirements of federal law and exceed comparable requirements in the prior permit. The Water Boards disagree. The challenged Annual Report elements are a necessary part of the federal mandate to control pollutants in storm water discharges from the MS4 to the MEP and the independent federal mandate to effectively prohibit non-storm water discharges into the MS4. Further, contrary to Claimants’ characterization, the requirement to include the challenged elements does not result in imposition of a new program or somehow require a higher level of service be provided by Copermittees. For the reasons discussed below, the Commission should find that no reimbursable state mandate was imposed.

²¹² Test Claim, Narrative Statement, pp. 51-52.

²¹³ For example, costs associated with issuing an electronic meeting notice and scheduling the already required annual meeting in a room with adequate space for the anticipated public and of making draft plans available for public review and comment would be *de minimis*.

Inclusion of the Challenged Elements in the Annual Reports Is Necessary to Meet the Federal MEP Standard

Directive K.3 in the 2010 Permit required submittal of a Jurisdictional Runoff Management Program (JRMP) Annual Report. Among other purposes, the JRMP annual report is necessary to evaluate whether timely implementation of control measures and other actions to reduce pollutants in storm water discharges in accordance with this Order, is achieved. The 2010 Permit found that the annual reporting requirements are consistent with federal regulations, which provide:

“The operator of a large or medium municipal separate storm sewer system that has been designated by the Director under section 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such a system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and (7) Identification of water quality improvements or degradation.”²¹⁴

All of the information required under Directive K.3., Table 5, and Attachment D challenged by Claimants are “data . . . accumulated throughout the reporting year” to provide a “status of implementing” the controls as specified in 40 CFR section 122.42(c). In more practical terms, reporting requirements are necessary so that Copermittees have criteria that can be used to demonstrate that their storm water management programs are implementing the most effective controls to reduce the discharge of pollutant to the MEP standard or if more effective measures must be implemented.

Unlike in the LA Permit case considered in *Department of Finance*, the San Diego Water Board found that the provisions in the 2010 Permit are exclusively based on federal law and found that the underlying substantive provisions to be reported upon were necessary to meet the MEP standard. Consistently, the 2010 Permit found that “[a]nnual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees’ programs.”²¹⁵ The San Diego Water Board’s findings are entitled to deference under *Department of Finance*.

Moreover, that the requirement is a federal, not a state mandate, is likewise supported by the inclusion of similar requirements in the most recent U.S. EPA-issued MS4 Permit for the District of Columbia. In that permit, U.S. EPA requires the District to “continue to implement, assess and upgrade all of the controls, procedures and management practices described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. . . ,” and “No later than 3 years from the issuance date of this permit the permittee shall notice a fully updated Plan

²¹⁴ 2010 Permit Fact Sheet, Finding D.1.g, p. 66, citing 40 C.F.R. § 122.42(c).

²¹⁵ 2010 Permit, Finding D.1.g., citing 40 C.F.R. § 122.42(c).

including all of the elements required in this permit.²¹⁶ U.S. EPA's Annual Report requirements imposed in the same permit also include extensive requirements for proposed revisions, assessments and analyses.²¹⁷ The fact that U.S. EPA has issued at least one permit that includes similar requirements supports the San Diego Water Board determination that the provisions were necessary to meet the MEP standard in this case.

Not a New Program or Higher Level of Service

The Water Boards disagree that the requirement to include additional elements in the JRMP Annual Reports imposes a new program or requires a higher level of service by Claimants. The prior MS4 permit for Riverside County also required preparation of updated JRMPs and, as described in the 2010 Permit, "reduces the amount of program activity-based reporting from Order No. R9-2004-001."²¹⁸ Claimants' contention that the 2004 Permit "did not contain the detailed requirements set forth in 40 CFR § 122.42(c)"²¹⁹ is incorrect. The substantive content to be included elsewhere in the Individual SWMP Annual Reports were specified in great detail as part of the Monitoring and Reporting Program (MRP) associated with the 2004 Permit.²²⁰ For example, the MRP for Order No. R9-2004-001 required comparable "Individual Annual Reports" as follows:

Each Individual Annual Report shall be a documentation of the activities conducted by each Permittee during the previous annual reporting period. Each Permittee shall submit their Individual Annual Report to the Principal Permittee by a date determined by the Principal Permittee for inclusion in the SWMP Annual Report. Each Individual Annual Report shall, at a minimum, contain the following:²²¹

- a) Comprehensive description of all activities conducted by the Permittee to meet all requirements of Order No. R9-2004-001, including, but not limited to, the following information:
 - (1) Development Planning (Section F):
 - (i) Description of any amendments to the General Plan or the development project approval process;
 - (ii) Number of grading permits issued;
 - (iii) Number of developments conditioned to meet SUSMP requirements*;
 - (iv) Attach one example of a development project that was conditioned to meet SUSMP requirements and a description of the required BMPs;
 - (v) Description of any updates to the environmental review process;

²¹⁶ U.S. EPA MS4 Permit DC0000221, (modified October 25, 2012) sec. 3.

²¹⁷ *Id.*, at sec. 6.2.1

²¹⁸ 2010 Permit Fact Sheet, Dir. K.3, pp. 175-76. The Fact Sheet continued: "Under the CASQA assessment model, activity-based reporting includes primarily outcomes that document compliance with permit requirements (Level 1 outcomes), rather than being indicators of the impact of activity implementation.[fn] This approach is consistent with guidance from the USEPA, which notes that annual reports should highlight program effectiveness as well as describing activities." *Id.*

²¹⁹ Test Claim Narrative Statement, p. 54.

²²⁰ See also, Order No. R9-2004-001, Directive C.2.

²²¹ See Order No. R9-2004-001, MRP No. R9-2004-001, Dir. III.A.1.

* Items with an asterisk are not applicable to the first annual report.

- (vi) Description and number of training efforts conducted during the reporting period (for staff, developers, contractors, etc.), including the number of staff trained; and
 - (vii) An assessment of program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (2) Construction (Section G):
- (i) Number of inspections conducted;
 - (ii) Number and type of enforcement actions related to construction sites;
 - (iii) Description of modifications made to the construction and grading approval process;
 - (iv) Description and number of training efforts conducted during the reporting period (for staff inspectors, contractors, and construction site operators); and
 - (v) An assessment of program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (3) Municipal (Section H.1):
- (i) Number of municipal inspections conducted;
 - (ii) Number and types of enforcement actions taken;
 - (iii) Number of catch basins and inlets that were inspected and the number that were cleaned;
 - (iv) Assessment of the amount and type of debris removed from catch basins, streets, and open channels, including an identification of problem areas that generate the most pollutants;
 - (v) Assessment of effectiveness of BMPs that have been implemented for municipal facilities and activities;
 - (vi) Description and number of training efforts conducted over the last year (for municipal facility operators and/or inspectors); and
 - (vii) An assessment of program effectiveness based on the measurable goals established in each Permittee's Individual SWMP.*
- (4) Industrial/Commercial (Section H.2):
- (i) Number of inspections conducted;
 - (ii) Number and type of enforcement actions taken; and
 - (iii) An assessment of overall program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (5) Residential (Section H.3):
- (i) A description of residential areas that were focused on during the past year;
 - (ii) Number and types of enforcement actions taken; and
 - (iii) Assessment of overall program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (6) Education (Section I):
- (i) Description of education efforts conducted by the Permittee (not collectively with other Permittees) during the previous year;
 - (ii) Assessment of overall program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (7) Illicit Discharge Detection and Elimination (Section J):
- (i) Number of illicit discharges, connections and spills reported and/or identified during the reporting period;
 - (ii) Number of illicit discharges or connections investigated during the reporting period and the outcome of the investigations;
 - (iii) Number and types of enforcement actions taken for illicit discharges or connections during the reporting period;

- (iv) Number of times your agency's hotline was called during the reporting period, as compared to previous reporting periods;
 - (v) Number and location of dry weather monitoring sites that were monitored during the reporting period;
 - (vi) Summary of Illicit Discharge Monitoring Program results, including: 1) All inspection, field screening, and analytical monitoring results; 2) All follow-up and elimination activities; and 3) Any proposed changes to station locations and/or sampling frequencies; and
 - (vii) An assessment of overall program effectiveness based on the measurable goals established in the Permittee's Individual SWMP.*
- (8) Public Participation – a description of efforts to include the public in urban runoff management programs during the reporting period (i.e., river clean-ups, volunteer monitoring, Permittee council meetings related to the SWMP, etc.).
- b) Assessment of Program Effectiveness - each Permittee shall include an assessment of the effectiveness of its Individual SWMP using the measurable goals and direct and indirect assessment measurements developed in the SWMP, in accordance with Attachment D of Order No. R9-2004-001.
- c) Fiscal Analysis Component - each Permittee shall include an annual fiscal analysis, for each fiscal year covered by Order No. R9-2004-001, in its Individual Annual Report. This analysis shall evaluate the expenditures (such as capital, operation and maintenance, education, and administrative expenditures) necessary to accomplish the activities of the Permittee's Individual SWMP. The analysis shall include the following:
- (1) A report of the previous reporting period's budget, and a budget for the upcoming reporting period. To the extent possible, the budgets should be broken down by the following programs:
 - (i) Program management;
 - (ii) Construction Inspections;
 - (iii) Development plan review/SUSMP implementation;
 - (iv) Industrial/Commercial inspections;
 - (v) Illicit discharge and connection response and elimination;
 - (vi) Municipal activities (catch basin cleaning, BMP maintenance, etc.);
 - (vii) Education;
 - (viii) Monitoring; and
 - (ix) Other
 - (2) A description of the source(s) of funds that were utilized during the previous fiscal year and the source(s) of funds proposed to meet the necessary expenditures for the subsequent year, including legal restrictions on the use of such funds.
- d) Non-Storm Water Discharges – Permittees shall report on any discharge category listed in Requirement B.2 of Order No. R9-2004-001 that was identified as a source of pollutants during the reporting period. For each identified category, the Permittee shall report whether it elected to prohibit the discharge or to require BMPs to reduce pollutants in the discharge to the MEP. If the discharge is not prohibited, the BMPs that will be implemented, or required to be implemented, shall be described in each Permittee's Individual SWMP Annual Report.
- e) Receiving Water Limitations – the report required pursuant to Requirement C.2.a. of Order No. R9-2004-001, if applicable.
- f) A summary of all urban runoff related data not included in the annual monitoring report (e.g., special investigations); and

- g) Proposed revisions to the Individual SWMP, including areas in need of improvement based on the assessment of effectiveness of each program component.²²²

The extensive level of detailed reporting requirements already in place prior to adoption of the 2010 Permit support the conclusion that no new program or higher level of service was imposed. Claimants have not established a state mandate exists.

Other Mandates Exceptions Also Apply

Even if the Commission finds that inclusion of the challenged elements in the Annual Report results in a state mandate, reimbursement should not be required. For many if not all of the related substantive provisions underlying the required elements, Claimants have fee authority and have not demonstrated they must raise taxes to fund their inclusion in the Annual Report. To the extent some of the underlying requirements to be reported upon concern municipal projects, Copermittees undertake those projects voluntarily and may not receive reimbursement for inclusion of the element in the Annual Report. Finally, inclusion of information generated from implementation of other substantive permit requirements should not result anything but *de minimis* costs. For all these reasons, and the additional reasons in the General Responses, above, the Commission should find no reimbursable state mandate has been imposed.

L. Special Studies Requirements (Attachment E)

Claimants assert that several special studies required in the 2010 Permit are not mandated by federal law and are properly the obligation of the San Diego Water Board or State Water Board to carry out. Therefore, Claimants assert, the San Diego Water Board has chosen to shift its responsibilities to Claimants to carry out the special studies requirements and they are state, not federal, mandates. As an initial matter, with respect to all of the challenged special studies, Claimants have not demonstrated that either the San Diego Water Board or the State Water Board is required by law to carry out the functions established in the special studies. There has been no shifting of responsibilities to the Copermitttees, as Claimants assert.

The special studies do not represent new programs or require Copermittees to perform higher levels of service than under prior permits. Instead, the Special Studies requirements were targeted at areas of copermittee program deficiencies and were designed to help ensure Copermittees achieve the required federal standard of controlling pollutants in storm water discharges to the MEP or the separate federal requirement of effectively prohibiting non-storm water discharges into the MS4. They primarily are intended to require the Copermittees to collect monitoring data as part of the federally required monitoring program that can be used either to demonstrate that their jurisdictional runoff management programs are meeting the federal standards or that will inform changes needed to improve their programs so that the standards are met. Although they have different substantive focuses than the 2004 Permit special studies, the do not amount to establishment of new programs or mandates to perform higher levels of service.

²²² Order No. R9-2004-001, MRP, Dir. III.A.1, pp. 12-14.

The Challenged Special Studies Are Necessary to Meet the MEP Standard

The special studies represent “prescribed conditions . . . on data and information collection” (see 122.26(d)(2)) to meet the federal requirements of MEP and the independent federal requirement to effectively prohibit non-storm water discharges to the MS4. As components of monitoring programs, the requirements were entirely consistent with both of these mandates. The Board found:

The Copermittees are required to update and expand their runoff management programs on jurisdictional and watershed levels in order to improve their efforts to reduce the contribution of storm water pollutants in runoff to the MEP and meet water quality standards. Changes to Order No. R9-2004-001’s requirements have been made to help ensure these two standards are achieved by the Copermittees.²²³

The determination to require these special studies was an essential part of this effort. The Board based the monitoring provisions in part on the need to understand how to address the “persistent exceedances of water quality objectives in the Santa Margarita watershed. The Santa Margarita watershed also has conditions that are frequently toxic to aquatic life. Bioassessment data from the watersheds further reflects these conditions”²²⁴ Special studies “are recommended when preliminary source identification work identifies a receiving water problem and/or to answer receiving water questions related to MS4 discharges not addressed by core monitoring programs.”²²⁵ They are necessary to require Copermittees to collect monitoring data that they can use to either demonstrate that their JRMPs are able to effectively prohibit non-storm water discharges and “reduce the discharge of pollutants to the MEP” or instead develop the data necessary to improve their programs to be able to achieve these requirements.

Claimants acknowledge that federal regulations require them to conduct a monitoring program and submit an annual report that among other things, identifies proposed changes to the storm water management program and revisions to the assessment of controls reported in the permit application. Claimants are also required by federal law to report on the identification of water quality improvements or degradation.²²⁶ Specifically, the federal regulations require Copermittees “to conduct a comprehensive monitoring program.” In support of the special studies requirements, the San Diego Water Board found significant water quality degradation in monitored receiving waters warranted requirements to address program deficiencies and noted:

The Copermittees’ water quality monitoring data submitted to date documents persistent violations of Basin Plan water quality objectives for various runoff-related pollutants (indicator bacteria, dissolved solids, turbidity, metals, pesticides, etc.) at various watershed monitoring stations. Persistent toxicity has also been

²²³ 2010 Permit Fact Sheet, Finding D.1.c.

²²⁴ 2010 Permit, Fact Sheet, p. 9.

²²⁵ 2010 Permit, Response to Comment 150. To the extent Claimants actually replaced requirements through participation in regional efforts and recognized cost savings, those costs savings must be identified.

²²⁶ See 40 C.F.R. §§ 122.26(d)(2)(iii) and 122.26(d)(2)(iv).

observed at some watershed monitoring stations. In addition, bioassessment data indicate that the majority of the monitored receiving waters have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Riverside County.²²⁷

The San Diego Water Board found that requirements such as the special studies were necessary to address noted program deficiencies.²²⁸

The overarching federal basis for the Monitoring Program (of which the special studies requirements are part) is to “assess the condition of receiving waters, monitor pollutants in storm and non-storm water effluent from the MS4, and conduct Special Studies to address conditions of concern.”²²⁹ Additional purposes of the MRP are to meet the following goals:

(1) Assess compliance with Order No. R9-2010-0016; (2) Measure and improve the effectiveness of the Copermitees’ runoff management programs; (3) Assess the chemical, physical, and biological impacts resulting from MS4 discharges; (4) characterize storm water discharges; identify sources of specific pollutants; prioritize drainage and sub-drainage areas that need management actions; detect and eliminate illicit discharges and illicit connections to the MS4, assess the overall health of receiving waters; and Provide information to implement required BMP improvements.²³⁰

As the San Diego Water Board found in Attachment E equally important to the recognized benefits of sampling data:

[M]onitoring programs are an essential link in the improvement of storm water management efforts. Data collected from monitoring programs can be assessed to determine the effectiveness of management programs and practices, which is vital for the success of the iterative approach used to meet the MEP standard for storm water. When water quality data indicate that water quality standards or objectives are being exceeded, particular pollutants, sources, and drainage areas can be identified and targeted for specific management efforts. When data indicate that a particular BMP or program component is not effective, improved efforts can be selected and implemented.²³¹

²²⁷ 2010 Permit, Finding C.9.

²²⁸ 2010 Permit, Finding D.1.c.

²²⁹ 2010 Permit, Section E, MRP, p. 2.

²³⁰ Ibid.

²³¹ 2010 Permit Fact Sheet, Attachment E, p. 186.

The Board likewise found that: “Considering the benefits described above, the Receiving Waters Monitoring and Reporting Program (MRP) has been designed to determine impacts to receiving water quality and beneficial uses from storm water runoff and to use the results to refine the Copermittees’ storm water runoff management programs for the reduction of storm water pollutant loadings to the MEP. For non-storm water discharges, monitoring has been designed to identify and eliminate prohibited illicit discharges and to determine appropriate actions to take in response to dry weather non-storm water action levels. *Each of the components of the MRP is necessary to meet the objectives listed above.*”²³²

A brief evaluation of each challenged study leads to the same conclusion – that the study requirements were necessary to meet the federal MEP standard or in some instances to demonstrate compliance with the effective prohibition of non-storm water discharges.

Sediment Toxicity Study

The Sediment Toxicity Study required a workplan to investigate the toxicity of sediment in streams and potential impacts on index of biotic integrity (IBI) scores and required inclusion of the results in Copermittees’ Annual Monitoring Report. Claimants’ primary argument specific to the sediment toxicity special study is that sediment should be addressed on a statewide basis because it is of statewide interest. The fact that sediment toxicity (like many other persistent water quality issues) is an issue statewide does not mean that it is not properly addressed by the San Diego Water Board in the context of waters within its region. The San Diego Water Board found that: “[t]his study has been added to the Monitoring and Reporting requirements to assess the quality of stream sediments and possible contamination due to runoff from the MS4.”²³³

The requirement was based on information provided by the Copermittees who had “identified the presence of aqueous toxicity at both mass loading stations due to pyrethroid pesticides, but their present in sediments is unknown.”²³⁴ The San Diego Water Board’s findings in the 2010 Permit Fact Sheet support a determination that to the contrary, the sediment toxicity study was necessary to implement the federal MS4 requirements.

Trash and Litter Investigation

The primary argument unique to the trash and litter investigation appears to be that the requirements may also result in evaluation of trash and litter that may have entered the MS4 or receiving waters from wind or direct deposit, rather than through storm water or non-storm water discharges. Therefore, Claimants assert, the requirement lacks federal basis. As noted in the requirement itself, the trash and litter study was intended to inform the need for improved BMPs as part of the iterative process of achieving the federal MEP standard. Specifically, the San Diego Water Board found that:

Although trash can impair beneficial uses, the amount and type of trash discharged into receiving waters from the Copermittee(s) MS4 is unknown. Thus, the Copermittees have largely been

²³² 2010 Permit, Section E, MRP, Fact Sheet, p. 186.

²³³ 2010 Permit, Attachment E, Fact Sheet, p. 196.

²³⁴ Ibid.

unable to assess the effectiveness of their BMPs that target trash as a pollutant. The special study requires the Copermitees to utilize previously developed protocols to determine the source of trash and litter in receiving waters, assess BMP effectiveness, and implement additional BMPs if needed according to the requirements of the Order.²³⁵

In addition, the fact that the 2012 MS4 Permit U.S. EPA issued to the District of Columbia under federal authority contains a provision requiring trash control supports the San Diego Water Board's conclusion that this study was necessary to meet MEP. In the Washington DC permit, U.S. EPA specified:

The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g., litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls.²³⁶

The program has associated requirements for development of a trash reduction calculation methodology as part of their Annual Report to U.S. EPA.²³⁷

Moreover, the trash and litter study originated from information voluntarily provided by Copermitees in their ROWD for the 2010 Permit. "Urban Runoff discharged to MS4s in Riverside County ultimately flows to various surface water bodies (inland streams, lakes, and reservoirs) and typically carries Pollutants that originate from numerous dispersed and uncontrolled sources. Examples of Pollutants that may be present in Urban Runoff are fertilizer, heavy metals, nutrients, petroleum products, sediment, bacteria, chemicals, and litter."²³⁸

Agricultural, Federal and Tribal Input Study

This special study required Copermitees to investigate the water quality of inputs to the Copermitees' MS4s from agricultural, tribal and federal runoff sources and include the results in the Monitoring Annual Report. Claimants contend that San Diego Water Board should have directed this study at the agricultural, federal and tribal sources through the San Diego Water Board's Porter-Cologne authority. While it is possible that the San Diego Water Board could have directed other entities to investigate discharges affecting Copermitee's MS4s, such discharges into Copermitees' MS4s are squarely their responsibility to evaluate in efforts to meet the MEP standard for storm water discharges and the independent federal law requirement that Copermitees' effectively prohibit non-storm water discharges into the MS4s. In any case, the San Diego Water Board is not responsible for undertaking the investigation required in the special study and did not shift its responsibility to Claimants. As the Board noted, the requirement for this study emanated from Copermitees' own ROWD:

²³⁵ *Ibid.*

²³⁶ Washington D.C. (2011) (Permit No. DC0000221), § A.4.7.2.

²³⁷ *Id.*, at A.4.7.10.

²³⁸ 2009 ROWD, § 4.4.2.

In the ROWD, the Copermittees specifically state their concern regarding the quality of storm water which is discharged into their MS4 from [agricultural, tribal and federal] areas, and state that these discharges may affect overall water quality, primarily in the Murrieta and Temecula Creek watersheds. However, no data, information, or analyses were presented or identified on the level of pollutants in such flows into their MS4. The special study has been designed with sampling frequency and parameter requirements that lend flexibility to the Copermittees.²³⁹

This study also originated from information voluntarily provided by Copermittees.

This special study was included based upon information provided in the Copermittees' ROWD, as the Copermittees stated their concern regarding the quality of storm water being discharged into their MS4s from Agricultural, Federal and Tribal areas without sufficient supporting data. The Copermittees are responsible for flows into, through and from their MS4s This special study is intended to identify those flows and determine the level of pollutants being discharged into their MS4s. The information from this study will be useful in determining whether pollutant contributions from agricultural, federal, and tribal areas are actually a significant source of pollutants entering the Copermittees' MS4 systems, as they assert.²⁴⁰

MS4 and Receiving Water Maintenance Study

This special study required Copermittees to develop a workplan to investigate receiving waters that are considered part of the MS4 and which are subject to continual vegetative clearance activities to assess the effects of the vegetation removal on water quality. It also required Copermittees to include the results in the annual monitoring report. The San Diego Water Board identified the purpose and need for the study as follows: "The objective of this study is to determine if there are short-term or long-term in-stream water quality impacts from maintenance activities and to assess if the activities exacerbate the impairment of receiving waters 303(d) listed as impaired wholly or partially from MS4 discharges. *Receiving waters within the Copermittees jurisdiction have been routinely cleared of vegetation by the Copermittees as part of their MS4 maintenance programs without mitigation efforts.*"²⁴¹ These purposes are wholly consistent with the goal of ensuring that Copermittees' efforts are effectively achieving the MED standard.

Claimants' argument that there can be no Clean Water Act basis for this study because beneficial uses cannot exist within MS4s as MS4s are by definition not waters of the United States.²⁴² Claimants contend that the rationale for the study – "that the MS4 and the 'receiving water' can be the same water body" is contradicted by a determination of the United States

²³⁹ 2010 Permit, Attachment E, Fact Sheet, p. 197.

²⁴⁰ 2010 Permit, Response to Comment 168.

²⁴¹ *Ibid.*

²⁴² Test Claim Narrative Statement, pp. 59-60.

Court of Appeals for the Ninth Circuit in *NRDC v. County of Los Angeles*, 673 F.3d 880 (9th Cir. 2011) reversed in part *sub nom.*, *Los Angeles County Flood Control Dist. V. NRDC*, 133 S. Ct. 710 (2013). Claimants' assertions are unsupported and their reliance on the 2011 *NRDC* case for the proposition cited is misplaced. On remand from the United States Supreme Court, the Ninth Circuit Court of Appeal recognized:

[I]t appears that the pertinent river segments are part of *both* the LA MS4 itself *and* 'the waters of the United States' that the CWA protects. . . . We misconstrued some of the data before us when we previously held otherwise. See *Natural Res. Def. Council*, 673 F.3d at 899.²⁴³

The Water Boards also disagree that the federal definition of MS4 precludes some portion of a receiving water body from also being considered part of an MS4.²⁴⁴

Not a New Program or Higher Level of Service

The prior permit similarly contained special studies intended to address specific research or management issues not addressed by core monitoring requirements as part of the monitoring and reporting program.²⁴⁵ That the focus of the studies in the 2010 Permit is directed at different and higher priority water quality issues requiring attention does not transform the studies into new programs or higher levels of service mandated on Claimants.

Other Mandates Exceptions Also Apply

As discussed above with regard to each of the challenged special studies, the studies were largely based on information voluntarily provided by Copermittees as water quality concerns. Further, Claimants have not demonstrated that they must raise tax monies to pay for implementation of the studies. Finally, it is likely that cost savings can be achieved by coordination of efforts or use of information for dual purposes. For all of these reasons, and for the additional reasons in the General Responses, above, the Commission should conclude there is no state mandate requiring subvention.

M. Requirements that 2010 Permit Program Ensure No Violations of Water Quality Standards and Other Requirements (Directives F.1., F.1.d, F.2., F.3.a, F.3.b, F.3.c, F.3.d, and F.6)

Claimants assert that language in the 2010 Permit required the implementation of programs independently required in Section F to meet standards that exceed what the Clean Water Act requires. Specifically, for each of the identified programs in Section F, Claimants challenge as exceeding federal law the associated language requiring implementation of the program to federal standards (1) to prevent discharges from the MS4 from causing or contributing to a violation of water quality standards or (2) to effectively prohibit non-storm water

²⁴³ *NRDC v. Los Angeles County Flood Control District*, (9th Cir. 2013) 725 F.3d 1194, 1200, *fn.* 12.

²⁴⁴ To the extent Claimants challenge all or a portion of a fifth special study as a state mandate, the Water Boards disagree that the LID impacts study requirement is a state rather than federal mandate. The LID impacts study Claimants identify as in lieu of the fifth special study is not a state mandate in any case because it is not required by the permit itself.

²⁴⁵ Order No. R9-2004-001, MRP, Section A.III, p. 8.

discharges/prevent illicit discharges into the MS4.²⁴⁶ In short, Claimants contend they are required to “meet the absolute requirement of ensuring no violation of water quality standards and the prevention of illicit discharges.”²⁴⁷

As an initial matter, Claimants acknowledge that they separately challenged the development and implementation of some of the programs as unfunded mandates. They assert, however, a separate unfunded mandate was imposed when the 2010 Permit included the identified standard(s) for implementation of each of the respective programs. To the extent the implementation of the underlying programs is or could have been challenged as state mandates, any costs associated with implementation of those requirements, whether implemented to successfully achieve compliance with water quality standards or to prohibit non-storm water discharges, or some lesser level of compliance, should be evaluated within the challenges to those substantive programs. The Water Boards do not view the challenged language within the program provisions as extractable for separate mandates evaluation. We nonetheless explain here why the language implements the federal standards applicable to MS4 permits and within the program contexts is neither new nor a higher level service when compared to Claimants’ prior MS4 permits.

The Receiving Water Limitations Language is Required by Federal Law and Does Not Impose A New Program or Higher Level of Service

Claimants assert that the challenged language requires absolute compliance or guarantees of compliance beyond what federal law requires. Claimants mischaracterize or misunderstand the nature of the permit requirements in the context of the 2010 Permit.

Together Provisions A.1, A.2, and A.3 in the Prohibitions and Receiving Water Limitations Provisions of the 2010 Permit implement the same language that the State Water Board directed in a 1999 precedential order that regional water boards use in MS4 permits.²⁴⁸ The precedential “receiving water limitations language” generally requires that municipal storm water discharges shall not cause or contribute to exceedances of water quality objectives in the receiving waters.²⁴⁹ The language was initially developed by U.S. EPA after it objected to receiving water limitations in two regional water board permits (including the 1998 MS4 Permit issued to Riverside County Copermittees) that effectively provided a safe harbor from enforcement during iterative process implementation. Since 1999, the State Water Board consistently has expected receiving water limitations in MS4 permits to be complied with through the iterative process of employing successively improved BMPs.²⁵⁰

²⁴⁶ Test Claim, Narrative Statement, p. 61-63.

²⁴⁷ Test Claim, Narrative Statement, p. 61.

²⁴⁸ State Board Order WQ 99-05 (*Environmental Health Coalition*), p.1.

²⁴⁹ *Ibid.*

²⁵⁰ See, State Water Board Order WQ 2015-0075, p. 11 (“We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,[fn] *but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements.*” (Emphasis added.)

Although it has been included in all permits issued to Riverside County Copermitees since 1999, Claimants argue that the San Diego Water Board's inclusion of the same mandatory language in specific program provisions in the 2010 Permit newly imposes an absolute compliance requirement where none existed previously. Although not cited for this proposition, Test Claimants in other MS4 matters, including *San Diego Region Order No. R9-2015-0100 and Order No. R9-2015-0001*, *Test Claim 15-TC-02*, have made parallel arguments, relying on the Ninth Circuit Court of Appeals decision in *NRDC v. County of Los Angeles* (2013) 725 F.3d 1194 (the *NRDC* decision) for the (incorrect) proposition that the 2013 opinion created a strict liability scheme where none existed previously. Orange County Claimants in that matter therefore asserted that the receiving water limitations language in the San Diego Regional Permit exceeds federal law by newly requiring "strict liability." The Water Boards' written comments filed in that Test Claim 15-TC-02 are equally responsive to Claimants' argument here.

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

The lack of a safe harbor in the iterative process of the 2001 Los Angeles Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the City of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly, the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.[fn] The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002[fn].²⁵¹

The decisions of the state²⁵² and federal courts on this point are in harmony with the Water Boards' long-standing view:

[T]he iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a 'safe harbor' to MS4 dischargers. When a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen

²⁵¹ State Water Board Order WQ 2015-0075, p. 11.

²⁵² See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 890; and *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

suit, regardless of whether or not the discharger is actively engaged in the iterative process.[fn]²⁵³

Although it specifically considered whether to allow a safe harbor as requested by many copermitee petitioners, the State Water Board declined in 2015 to modify its longstanding interpretation of its precedential language.²⁵⁴ In sum, engagement in the iterative process did not, as Claimants suggest and may have perceived, afford them a safe harbor from enforcement under prior permits with comparable provisions. The Ninth Circuit Court of Appeals' conclusion that receiving water limitations provisions are independent from the provisions establishing the iterative process for purposes of enforcement is not new, but instead confirms the Water Boards' historical interpretation carried through successive permits for MS4s statewide. Thus, not only is the receiving water limitations language not new—neither is the Water Boards' interpretation of the language with regard to the legal standard for enforceability.²⁵⁵

The receiving water limitations language, in general, requires that storm water discharges from MS4s not cause or contribute to a violation of water quality standards. Compliance with water quality standards is expected to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs [through the water quality improvement plans] over time.²⁵⁶ The San Diego Water Board reiterated in the 2010 Permit that achieving compliance “will be accomplished through the implementation of water quality improvement strategies and runoff management programs [BMPs] that effectively prohibit non-storm water discharges into the Copermitees' MS4s, and reduce pollutants in storm water discharges from the Copermitees' MS4s to the MEP.”²⁵⁷ This approach is wholly consistent with the precedential language developed by U.S. EPA and established in precedential language in 1999. As explained above, the language does not exceed federal law by newly requiring and absolute requirement or a guarantee of compliance with water quality standards, as Claimants contend. The receiving water limitations language is required by federal law and is expected to be achieved through an iterative process over time.

²⁵³ State Water Board Order WQ 2015-0075, p. 12, fn. 44.

²⁵⁴ In declining to modify the receiving water limitations language to establish a safe harbor as requested by many copermitees statewide, the State Water Board concluded: “We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards.” (*Id.*, p. 15.)

²⁵⁵ See also, e.g., San Diego Water Board Responses to Comments on Tentative Order No. R9-2013-0001, March 27, 2013, p. 40 (“While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an ‘iterative process,’ using the State Water Board’s precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a ‘safe harbor’ for MS4 dischargers. Thus, the Ninth Circuit’s recent opinion is consistent with the Water Boards’ interpretation and does not create any new uncertainty or third party liability risks that did not previously exist.”)

²⁵⁶ 2010 Permit, Finding D.1. And see Finding D.1.a, “This Order specifies requirements necessary for the Copermitees to reduce the discharge of pollutants in storm water to the MEP. However, since MEP is a dynamic performance standard, which evolves over time as runoff management knowledge increases, the Copermitees’ runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of runoff management program implementation is expected to ultimately achieve compliance with water quality standards in the Region.”

²⁵⁷ *Id.*, Dir. A.

Inclusion of similar requirements in U.S. EPA-issued permits likewise supports the San Diego Water Board's determination of federal necessity. The Supreme Court in *Department of Finance* observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 Permit), and found that the absence of such conditions in EPA-issued permits "undermines the argument that the requirement was federally mandated."²⁵⁸ Here, U.S. EPA's MS4 permit issued to the District of Columbia in 2011 (modified in 2012) includes a substantially similar provision requiring compliance with water quality standards.²⁵⁹ The State Water Board also recognized the District of Columbia's MS4 permit is reflective of U.S. EPA's "general practice" to also require compliance with water quality standards over time.²⁶⁰ That the MS4 Permit issued by U.S. EPA to the District of Columbia also imposes comparable requirements demonstrates that the San Diego Water Board effectively administered federal requirements concerning permit requirements and further supports the Water Boards' view that the permit provisions are required by federal law.

In any case, the receiving water limitations language in Provision A of the 2010 Permit is not a new – it is identical in substance to the receiving water limitations language set forth not only in the 2004 Permit but also as included by USEPA in 1999 when it assumed responsibility for issuing Order No. 98-02 with appropriate water quality standards language in 1999.²⁶¹ Nor does the language in the 2010 Permit impose any more stringent level of compliance than previously existed. As discussed above, under mandates law, a program is "new" if the local government had not previously been required to implement it. (*County of Los Angeles v. Comm'n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) Here, even if each of the challenged provisions could be considered a "program," none meets the definition of "new."

Moreover, Claimants have not established that a higher level of service is required as compared to prior permits. In fact, the 2010 Permit carries forward language from the 2004 Permit in which the San Diego Water Board stated that compliance with the iterative process is not a shield to enforcement. "It should be noted that while implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality objectives. Consistent with EPA guidance (EPA, 1998a and 1998b) regardless of whether or not an iterative process is being implemented, *discharges that cause or contribute to an exceedance of water quality objectives are in violation of Order No. R9-2004-001.*"²⁶² The 2010 Permit's comparable provision states: "Nothing in section A.3 [Prohibitions and Receiving Water Limitations] prevents the San Diego Water Board from enforcing any provision of this

²⁵⁸ *Id.*, at pp. 771-772.

²⁵⁹ "[The permittee must] [e]ffectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the Ms4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS)." (DC0000221, modified October 25, 2012, p. 5.)"

²⁶⁰ State Water Board Order WQ 2015-0075, citing to Modified NPDES Permit No. DC0000221 for the MS4 for the District of Columbia, p. 14.

²⁶¹ See Order No. R9-2004-001, Provisions A and C.; Order 98-2 (as modified by USEPA 1999 and readopted by the San Diego Water Board in 2000).

²⁶² Order No. R9-2004-001, Permit Fact Sheet, § C.2., p. 34 (emphasis added).

Order while the Copermittee prepares and implements the above [iterative process implementation] report.”²⁶³ The 2010 Permit did not impose a higher level of service.

Because the challenged permit language does not impose a new program or higher level of service on Claimants, the Commission should find that no state mandate was imposed.

Effective Prohibition of Non-Storm Water Discharges (CWA § 402(p)(3)(B)(ii))

Claimants assert that in various permit requirements to implement some of the Claimants’ development programs (e.g., development planning programs, programs for discharges from municipal, commercial/industrial and residential facilities) they are required to prevent illicit discharges to the MS4 or to eliminate residential non-storm water discharges to the MS4. Specifically, with regard to Development Planning (F.1), the Construction Component (F.2), the Municipal Component (F.3.a.), the Commercial/Industrial Component (F.3.b.) and the Residential Component (F.3.c), Claimants assert they were required to go beyond “effectively prohibiting” non-storm water discharges to the MS4 and were instead held to “prevent” or “eliminate” such discharges.”²⁶⁴ Claimants contend a state mandate was imposed by inclusion of the challenged language because “[n]othing in federal law or regulation authorized the RWQCB to require Claimants to develop or implement programs that will prevent non-stormwater discharges from entering the MS4”²⁶⁵

The challenged language concerning elimination or prevention of unauthorized non-storm water discharges implements and is required by federal law. As discussed in more detail above, independent from the MEP standard is the Clean Water Act requirement that MS4 permittees effectively prohibit non-storm water discharges to their MS4s. Under Clean Water Act section 402(p)(3)(B)(ii), permitting agencies must ensure that permits for MS4 discharges include requirements necessary to “effectively prohibit non-stormwater discharges into the storm sewers.” While “non-storm water” is not defined in the CWA or federal regulations, the federal regulations define “illicit discharge” as “any discharge to a municipal separate storm sewer that is not composed entirely of storm water and that is not covered by an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer and discharges resulting from firefighting activities).”²⁶⁶ This definition is the most closely applicable definition of “non-storm water” contained in federal law.

As stated in the Phase I Final Rule, U.S. EPA added the illicit discharge program requirement to begin implementation of the “effective prohibition” requirement to detect and control certain non-storm water discharges to their municipal system. U.S. EPA stated: “Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the [MS4].”²⁶⁷

²⁶³ 2010 Permit, Directive A.3.c.

²⁶⁴ Test Claim, Narrative Statement, pp. 62-63.

²⁶⁵ Id., p. 65.

²⁶⁶ 40 C.F.R. § 122.26(b)(2).

²⁶⁷ 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).

While the CWA requires MS4 permittees to “effectively prohibit” unauthorized non-storm water discharges to the MS4, the implementing federal storm water regulations also address the prevention or elimination of illicit discharges. Specifically, the storm water regulations provide that the proposed management program “shall be based on a description of a program, including a schedule, to detect and *remove* (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) *illicit discharges* and improper disposal into the storm sewer.”²⁶⁸ Similarly, proposed management programs must include “a program, including inspections, to implement and enforce an ordinance, orders or similar means to *prevent illicit discharges* to the municipal storm sewer system.”²⁶⁹ Other regulatory provisions also contemplate permittees will implement programs to prevent non-storm water discharges to the MS4s.²⁷⁰

The Water Boards are not aware of any judicial opinions interpreting the phrase “effectively” as it modifies “prohibit non-storm water discharges” in the CWA. However, in general, the requirement to “effectively prohibit” non-storm water discharges has been interpreted in MS4 permits to require either the prohibition of unauthorized non-storm water flows to the MS4’s system through a program to detect and remove illicit discharges or ensuring that operators of such non-storm water systems obtain NPDES permits for those discharges. This implementation approach is consistent with Clean Water Act’s prohibition on discharges of pollutants to surface waters without first obtaining a NPDES permit for such discharge.²⁷¹ MS4 operators meet this requirement by implementing a program to detect and remove illicit discharges, or by requiring a discharger to obtain a separate NPDES permit for the non-storm water discharge into the storm sewer.²⁷²

The Non-Storm Water/Illicit Discharge Provisions Are Not New and Do Not Impose A Higher Level of Service

Even if the Commission were to agree with Claimants that the requirement to prohibit non-storm water discharges appearing in identified instances in the 2010 Permit exceeds what federal law requires, no state mandate exists because Claimants are unable to demonstrate that the challenged language imposes a new program or higher level of service.

Order No. 98-02 (issued to Riverside County Copermittees, as modified, in 2000) specified that with certain enumerated exceptions, “permittees *shall prohibit* non-storm water discharges into the MS4.”²⁷³ And while the 2004 Permit specifies that permittees “shall effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized

²⁶⁸ 40 C.F.R. 122.26(d)(2)(iv)(B) (emphasis added).

²⁶⁹ *Id.*, at 122.26(d)(2)(iv)(B)(1) (emphasis added).

²⁷⁰ See, e.g., 40 CFR 122.26(d)(2)(iv)(B)(3) (proposed management program to include ‘procedures to be followed to investigate portions of the [MS4] . . . indicate reasonable potential of containing illicit discharges or other sources of non-storm water.’; and 40 CFR 122.26(d)(2)(iv)(B)(4) (“proposed management program to include “a description of procedures to *prevent*, contain, and respond to spills that may discharge into the [MS4].” (emphasis added).)

²⁷¹ CWA § 301.

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

²⁷³ Order 98-02, as modified, Section A.2.

by a separate NPDES permit; or authorized in accordance with [permit provisions],”²⁷⁴ it also requires development and implementation of an illicit discharge detection and elimination program “containing measures to actively seek and *eliminate* illicit discharges and connections.”²⁷⁵

The prior permit, consistent with the federal storm water regulations discussed above, also requires that permittees “shall *eliminate* all illicit discharges, illicit discharge sources, and illicit connections as soon as possible after detection; and “shall implement and enforce its ordinances, orders, or other legal authority to *prevent* illicit discharges and connections to its MS4.”²⁷⁶ The challenged requirements are not a new program and do not impose any higher standard or level of service on Copermittees. Accordingly, the Commission should find no state mandate was imposed.

Other Mandates Exceptions Also Apply

Even if the Commission nonetheless finds that the implementation standards in the 2010 Permit programs challenged here independently impose new programs or higher levels of service or exceed federal requirements, any associated incremental costs in implementing the programs are *de minimis*. Additionally, as discussed above, the Claimants have fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For all of these reasons, and for the additional reasons discussed in the General Responses, above, the Commission should find that no subvention is required for these challenged aspects of substantive programs.

VI. CONCLUSION

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

The focus of consideration of the federal mandate exception in *Department of Finance* was the application of the MEP standard to two LA MS4 Permit provisions, where the Los Angeles Regional Water Quality Control Board had not explicitly found that the provisions met that standard.²⁷⁷ In reaching the conclusion that those two provisions did *not* meet MEP, the Court suggested that the result might have been different if the agency *had* found that permit conditions were MEP, and specifically noted that deference to the agency would be appropriate.²⁷⁸ Here, the San Diego Water Board *did* find that the permit conditions of the MS4 Permit were necessary to satisfy the MEP standard and that the permit was based entirely on federal law. Those findings are entitled to deference.

²⁷⁴ Order No. R9-2004-001, section B.1.

²⁷⁵ Order No. R9-2004-001, Section J.

²⁷⁶ Order No. R9-2004-001, Section J.5 and J.6 (emphasis added).

²⁷⁷ *Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 768.

²⁷⁸ *Id.*

Even if the Commission does not defer to the San Diego Water Board's findings, analogous provisions in U.S. EPA-issued permits independently demonstrate that the Permit's provisions were federally mandated.²⁷⁹ In addition, the Permit's provisions implement other federal standards, discussed above, that the Supreme Court did not evaluate. Furthermore, the Supreme Court's decision did not address a number of the other exceptions to mandates law present here, such as the existence of fee authority, the absence of a new program or higher level of service, and the absence of requirements "unique" to local governments and situations where costs are *de minimis*.

For these reasons, the Commission should find that the 2010 Permit does not impose state mandates requiring subvention and the Commission should deny the Test Claim in its entirety.

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



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Attachments

cc: Service List via Commission Drop Box

²⁷⁹ See *id.*, at p. 772.

ATTACHMENTS TO WATER BOARD COMMENTS FOR 11-TC-03

State Statutes and Regulations

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

Federal Court Decisions

4. *Waterkeeper Alliance, Inc. v. U.S. EPA* (2nd Cir. 2005) 399 F.3d. 486
5. *Natural Resources Defense Council v. Los Angeles County Flood Control Dist.* (9th Cir. 2013) 725 F.3d 1194.

State Court Decisions

6. *Connell v. Superior Court* (1997) 59 Cal.App.4th 382
7. *Clovis Unified School District v. Chiang* (2010) 188 Cal.App.4th 794

State Policies and Permits

8. State Water Resources Control Board, *Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options* (June 16, 2005)
9. State Water Resources Control Board, Water Quality (WQ) Order No. 2012-0175, *Waste Discharge Requirements for the Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4* (June 16, 2015)
10. State Water Resources Control Board, Order 2012-0011-DWQ as Amended, NPDES No. CAS000003, *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for State of California, Department of Transportation* (Adopted 2012, Amended 2014 and 2015)
11. State Water Resources Control Board, Order No. 2014-0057-DWQ NPDES No. CAS000001, *General Permit for Storm Water Discharges Associated with Industrial Activities* (Adopted April 1, 2014)

San Diego Water Board MS4 Permit Materials

12. Order No. 98-02 as amended in 2000 to reflect revisions required by USEPA in 1999 (Addendum No. 1 to Order No. 98-02 Modifying Order No. 98-02 to Incorporate Language Developed by the United States Environmental Protection Agency) and Agenda Item

ATTACHMENTS TO WATER BOARD COMMENTS FOR 11-TC-03

13. San Diego Water Board Response to Comments on Order No. R9-2013-0001 (March 27, 2013)
14. San Diego Water Board Response to Comments on Order No. R9-2015-0001 (January 21, 2015)
15. San Diego Water Board Response to Comments Report for Order No. R9-2015-0100 (November 4, 2015, Revised November 10, 2015)
16. U.S. EPA Comment Letter on Draft Regional MS4 Permit (February 14, 2012)
17. U.S. EPA Comment Letter on Draft Regional MS4 Permit (January 11, 2013)
18. Transcript of San Diego Water Board Public Hearing for Order No. R9-2015-0100, November 18, 2015
19. U.S. EPA Comment Letter on 2009 Orange County MS4 Permit (May 14, 2009)
20. U.S. EPA Comment Letter on 2009 Orange County MS4 Permit (June 18, 2009)
21. U.S. EPA Comment Letter on 2009 Orange County MS4 Permit (Sept. 28, 2009)

Other Regional Water Board MS4 Permit Materials

22. 2001 Los Angeles Regional Water Board MS4 Permit, Order No. 01-182, *NPDES Permit CAS004001, Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach* (December 2001, amended in September 2006 and August 2007)

U.S. EPA Issued MS4 Permits, Correspondence and Guidance

23. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit*, issued to the District of Columbia (Final Modified Permit, October 25, 2012)
24. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit*, issued to the District of Columbia, Fact Sheet (September 30, 2011)
25. Letter from Alexis Strauss, U.S. EPA, to State Water Board (April 10, 2008)
26. Letter from Alexis Strauss, U.S. EPA, to Mark Grey (July 31, 2008)
27. Letter from U.S. EPA to Santa Ana Water Board re Draft Permit for Orange County (June 20, 2014)
28. Letter from U.S. EPA to Los Angeles Water Board re Draft Permit for Los Angeles (July 23, 2012)
29. Letter from U.S. EPA to State Water Board Concerning Petition A-2236(a)-(kk) (January 20, 2015)

ATTACHMENTS TO WATER BOARD COMMENTS FOR 11-TC-03

30. U.S. EPA, *MS4 Improvement Guidance* (April 2010)
31. U.S. EPA, *National Management Measures to Control Nonpoint Source Pollution from Hydromodification* (July 2007)
32. U.S. EPA Hydromodification Management Program Technical Report (December 2005)

Miscellaneous Materials

33. 2005 Stormwater Utility Report, Black and Veatch
34. City of Santa Cruz Measure E
35. City of San Jose Storm Sewer Charge (web page listing)
36. City of San Clemente Urban Runoff Management Fee/Clean Ocean Program
37. City of Palo Alto Storm Drainage Fee/San Jose Mercury News Article
38. City of Alameda Sewer and Storm Water Fees Bulletin

ATTACHMENT

1

West's Annotated California Codes

Water Code

Division 7. Water Quality

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972

West's Ann.Cal.Water Code D. 7, Ch. 5.5, Refs & Annos
[Currentness](#)

Editors' Notes

GENERAL NOTES

2009 Main Volume

<Chapter 5.5 was added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 12, 1972.>

West's Ann. Cal. Water Code D. 7, Ch. 5.5, Refs & Annos, CA WATER D. 7, Ch. 5.5, Refs & Annos
Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13370

§ 13370. Legislative findings and declarations

Currentness

The Legislature finds and declares as follows:

(a) The Federal Water Pollution Control Act ([33 U.S.C. Sec. 1251 et seq.](#)), as amended, provides for permit systems to regulate the discharge of pollutants and dredged or fill material to the navigable waters of the United States and to regulate the use and disposal of sewage sludge.

(b) The Federal Water Pollution Control Act, as amended, provides that permits may be issued by states which are authorized to implement the provisions of that act.

(c) It is in the interest of the people of the state, in order to avoid direct regulation by the federal government of persons already subject to regulation under state law pursuant to this division, to enact this chapter in order to authorize the state to implement the provisions of the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, and federal regulations and guidelines issued pursuant thereto, provided, that the state board shall request federal funding under the Federal Water Pollution Control Act for the purpose of carrying out its responsibilities under this program.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2343, § 1; Stats.1980, c. 676, p. 2028, § 319; [Stats.1987, c. 1189, § 1.](#))

West's Ann. Cal. Water Code § 13370, CA WATER § 13370

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13370.5

§ 13370.5. Additional findings and declarations; pretreatment program

Currentness

(a) The Legislature finds and declares that, since the Federal Water Pollution Control Act (33 U.S.C. Sec. 1251 et seq.), as amended, and applicable federal regulations (40 C.F.R. § 403 et seq.) provide for a pretreatment program to regulate the discharge of pollutants into publicly owned treatment works and provide that states with approved national pollutant discharge elimination system (NPDES) permit programs shall apply for approval of a state pretreatment program, it is in the interest of the people of the state to enact this section in order to avoid direct regulation by the federal government of publicly owned treatment works already subject to regulation under state law pursuant to this division.

(b) The state board shall develop a state pretreatment program and shall, not later than September 1, 1985, apply to the Environmental Protection Agency for approval of the pretreatment program in accordance with federal requirements.

Credits

(Added by Stats.1984, c. 1542, § 1.)

West's Ann. Cal. Water Code § 13370.5, CA WATER § 13370.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.



KeyCite Red Flag - Severe Negative Treatment

KeyCite Red Flag Negative Treatment§13371. Repealed by Stats.1987, c. 1189, §2

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13371

§ 13371. Repealed by Stats.1987, c. 1189, § 2

[Currentness](#)

West's Ann. Cal. Water Code § 13371, CA WATER § 13371

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13372

§ 13372. Construction and application of chapter

Effective: January 1, 2004

[Currentness](#)

(a) This chapter shall be construed to ensure consistency with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto. To the extent other provisions of this division are consistent with the provisions of this chapter and with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, those provisions apply to actions and procedures provided for in this chapter. The provisions of this chapter shall prevail over other provisions of this division to the extent of any inconsistency. The provisions of this chapter apply only to actions required under the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

(b) The provisions of [Section 13376](#) requiring the filing of a report for the discharge of dredged or fill material and the provisions of this chapter relating to the issuance of dredged or fill material permits by the state board or a regional board shall be applicable only to discharges for which the state has an approved permit program, in accordance with the provisions of the Federal Water Pollution Control Act, as amended, for the discharge of dredged or fill material.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by [Stats.1987, c. 1189, § 3](#); [Stats.2003, c. 683 \(A.B.897\), § 5](#).)

[Notes of Decisions \(1\)](#)

West's Ann. Cal. Water Code § 13372, CA WATER § 13372

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13373

§ 13373. Certain definitions; same as federal act

Currentness

The terms “navigable waters,” “administrator,” “pollutants,” “biological monitoring,” “discharge” and “point sources” as used in this chapter shall have the same meaning as in the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1987, c. 1189, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13373, CA WATER § 13373

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13374

§ 13374. Waste discharge requirements; equivalent to “permits” under federal act

Currentness

The term “waste discharge requirements” as referred to in this division is the equivalent of the term “permits” as used in the Federal Water Pollution Control Act, as amended.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

Notes of Decisions (1)

West's Ann. Cal. Water Code § 13374, CA WATER § 13374

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13375

§ 13375. Radiological, chemical or biological warfare agents; discharge prohibited

[Currentness](#)

The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

West's Ann. Cal. Water Code § 13375, CA WATER § 13375

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13376

§ 13376. Discharging pollutants or dredged or fill material or operating treatment works; reports of discharges or proposed discharges; prohibited discharges; exceptions

Effective: January 1, 2011

[Currentness](#)

A person who discharges pollutants or proposes to discharge pollutants to the navigable waters of the United States within the jurisdiction of this state or a person who discharges dredged or fill material or proposes to discharge dredged or fill material into the navigable waters of the United States within the jurisdiction of this state shall file a report of the discharge in compliance with the procedures set forth in [Section 13260](#). Unless required by the state board or a regional board, a report need not be filed under this section for discharges that are not subject to the permit application requirements of the Federal Water Pollution Control Act, as amended. ¹ A person who proposes to discharge pollutants or dredged or fill material or to operate a publicly owned treatment works or other treatment works treating domestic sewage shall file a report at least 180 days in advance of the date on which it is desired to commence the discharge of pollutants or dredged or fill material or the operation of the treatment works. A person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, which treatment works commenced operation before January 1, 1988, and does not discharge to navigable waters of the United States, shall file a report within 45 days of a written request by a regional board or the state board, or within 45 days after the state has an approved permit program for the use and disposal of sewage sludge, whichever occurs earlier. The discharge of pollutants or dredged or fill material or the operation of a publicly owned treatment works or other treatment works treating domestic sewage by any person, except as authorized by waste discharge requirements or dredged or fill material permits, is prohibited. This prohibition does not apply to discharges or operations if a state or federal permit is not required under the Federal Water Pollution Control Act, as amended.

Credits

(Added by [Stats.1987, c. 1189, § 6](#). Amended by [Stats.2010, c. 288 \(S.B.1169\), § 32](#).)

[Notes of Decisions \(11\)](#)

Footnotes

¹ [33 U.S.C.A. § 1251 et seq.](#)

West's Ann. Cal. Water Code § 13376, CA WATER § 13376

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.



KeyCite Yellow Flag - Negative Treatment

Unconstitutional or Preempted Limited on Preemption Grounds by [Karuk Tribe of Northern California v. California Regional Water Quality Control Bd., North Coast Region](#), Cal.App. 1 Dist., Mar. 30, 2010

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13377

§ 13377. Issuance of waste discharge requirements and dredged or fill material permits

[Currentness](#)

Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 618, p. 2068, § 1; Stats.1978, c. 746, p. 2344, § 3.)

[Notes of Decisions \(6\)](#)

West's Ann. Cal. Water Code § 13377, CA WATER § 13377

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13378

§ 13378. Adoption of waste discharge requirements and dredged or fill material permits; notice and hearing; term

Currentness

Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing. Such requirements or permits shall be adopted for a fixed term not to exceed five years for any proposed discharge, existing discharge, or any material change therein.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13378, CA WATER § 13378

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KeyCite Red Flag - Severe Negative Treatment

KeyCite Red Flag Negative Treatment§13379. Repealed by Stats.1978, c. 618, p. 2069, §2

[West's Annotated California Codes](#)

[Water Code \(Refs & Annos\)](#)

[Division 7. Water Quality \(Refs & Annos\)](#)

[Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 \(Refs & Annos\)](#)

West's Ann.Cal.Water Code § 13379

§ 13379. Repealed by Stats.1978, c. 618, p. 2069, § 2

[Currentness](#)

West's Ann. Cal. Water Code § 13379, CA WATER § 13379

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Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13380

§ 13380. Review of waste discharge requirements and dredged or fill material permits

Currentness

Any waste discharge requirements or dredged or fill material permits adopted under this chapter shall be reviewed at least every five years and, if appropriate, revised.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 5.)

West's Ann. Cal. Water Code § 13380, CA WATER § 13380

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13381

§ 13381. Termination or modification of waste discharge requirements and dredged or fill material permits

Currentness

Waste discharge requirements or dredged or fill material permits may be terminated or modified for cause, including, but not limited to, all of the following:

- (a) Violation of any condition contained in the requirements or permits.
- (b) Obtaining the requirements by misrepresentation, or failure to disclose fully all relevant facts.
- (c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 6.)

West's Ann. Cal. Water Code § 13381, CA WATER § 13381

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13382

§ 13382. Control of disposal of pollutants into wells or surrounding groundwater

[Currentness](#)

Waste discharge requirements shall be adopted to control the disposal of pollutants into wells or in areas where pollutants may enter into a well from the surrounding groundwater.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1984, c. 1461, § 1.)

West's Ann. Cal. Water Code § 13382, CA WATER § 13382

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Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13382.5

§ 13382.5. Discharge of pollutants from a point source to aquaculture project

Currentness

Waste discharge requirements shall be adopted to permit the discharge of a specific pollutant or pollutants in a controlled manner from a point source to a defined managed aquaculture project if such discharge meets all applicable requirements of the Federal Water Pollution Control Act¹ and acts amendatory thereof and supplementary thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans.

Credits

(Added by Stats.1978, c. 618, p. 2069, § 3.)

Footnotes

¹ 33 U.S.C.A. § 1251 et seq.

West's Ann. Cal. Water Code § 13382.5, CA WATER § 13382.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383

§ 13383. Monitoring, inspection, entry, reporting, and recordkeeping requirements; establishment and maintenance; inspections

Effective: January 1, 2004

[Currentness](#)

(a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by [Section 13160](#), [13376](#), or [13377](#) or by subdivisions (b) and (c) of this section, for any person who discharges, or proposes to discharge, to navigable waters, any person who introduces pollutants into a publicly owned treatment works, any person who owns or operates, or proposes to own or operate, a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes, or proposes to use or dispose, of sewage sludge.

(b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.

(c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in [subdivision \(c\) of Section 13267](#).

Credits

(Added by [Stats.1987, c. 1189, § 8](#). Amended by [Stats.2003, c. 683 \(A.B.897\), § 6](#).)

West's Ann. Cal. Water Code § 13383, CA WATER § 13383

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.5

§ 13383.5. Storm water discharge; monitoring requirements;
application to specified municipalities and regulated industries

Effective: January 1, 2002

[Currentness](#)

(a) As used in this section, “regulated municipalities and industries” means the municipalities and industries required to obtain a storm water permit under Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) and implementing regulations.

(b) This section only applies to regulated municipalities that were subject to a storm water permit on or before December 31, 2001, and to regulated industries that are subject to the General Permit for Storm Water Discharges Associated with Industrial Activities Excluding Construction Activities.

(c) Before January 1, 2003, the state board shall develop minimum monitoring requirements for each regulated municipality and minimum standard monitoring requirements for regulated industries. This program shall include, but is not limited to, all of the following:

(1) Standardized methods for collection of storm water samples.

(2) Standardized methods for analysis of storm water samples.

(3) A requirement that every sample analysis under this program be completed by a state certified laboratory or by the regulated municipality or industry in the field in accordance with the quality assurance and quality control protocols established pursuant to this section.

(4) A standardized reporting format.

(5) Standard sampling and analysis programs for quality assurance and quality control.

(6) Minimum detection limits.

(7) Annual reporting requirements for regulated municipalities and industries.

(8) For the purposes of determining constituents to be sampled for, sampling intervals, and sampling frequencies, to be included in a municipal storm water permit monitoring program, the regional board shall consider the following information, as the regional board determines to be applicable:

(A) Discharge characterization monitoring data.

(B) Water quality data collected through the permit monitoring program.

(C) Applicable water quality data collected, analyzed, and reported by federal, state, and local agencies, and other public and private entities.

(D) Any applicable listing under Section 303(d) of the Clean Water Act ([33 U.S.C. Sec. 1313](#)).

(E) Applicable water quality objectives and criteria established in accordance with the regional board basin plans, statewide plans, and federal regulations.

(F) Reports and studies regarding source contribution of pollutants in runoff not based on direct water quality measurements.

(d) The requirements prescribed pursuant to this section shall be included in all storm water permits for regulated municipalities and industries that are reissued following development of the requirements described in subdivision (c). Those permits shall include these provisions on or before July 1, 2008. In a year in which the Legislature appropriates sufficient funds for that purpose, the state board shall make available to the public via the Internet a summary of the results obtained from storm water monitoring conducted in accordance with this section.

Credits

(Added by [Stats.2001, c. 492 \(S.B.72\)](#), § 1.)

West's Ann. Cal. Water Code § 13383.5, CA WATER § 13383.5

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.6

§ 13383.6. Educational materials on stormwater pollution; permits issued with the requirement; satisfaction

Effective: January 1, 2006

[Currentness](#)

On and after January 1, 2007, if a regional board or the state board issues a municipal stormwater permit pursuant to Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) that includes a requirement to provide elementary and secondary public schools with educational materials on stormwater pollution, the permittee may satisfy the requirement, upon approval by the regional board or state board, by contributing an equivalent amount of funds to the Environmental Education Account established pursuant to [subdivision \(a\) of Section 71305 of the Public Resources Code](#).

Credits

(Added by [Stats.2005, c. 581 \(A.B.1721\)](#), § 7.)

West's Ann. Cal. Water Code § 13383.6, CA WATER § 13383.6

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.7

§ 13383.7. Comprehensive guidance document for evaluating and measuring effectiveness of municipal stormwater management programs; quantifiable measures; reference to guidelines in establishing municipal stormwater programs and permits

Effective: January 1, 2008

[Currentness](#)

(a) No later than July 1, 2009, and after holding public workshops and soliciting public comments, the state board shall develop a comprehensive guidance document for evaluating and measuring the effectiveness of municipal stormwater management programs undertaken, and permits issued, in accordance with Section 402(p) of the Clean Water Act ([33 U.S.C. Sec. 1342\(p\)](#)) and this division.

(b) For the purpose of implementing subdivision (a), the state board shall promote the use of quantifiable measures for evaluating the effectiveness of municipal stormwater management programs and provide for the evaluation of, at a minimum, all of the following:

(1) Compliance with stormwater permitting requirements, including all of the following:

(A) Inspection programs.

(B) Construction controls.

(C) Elimination of unlawful discharges.

(D) Public education programs.

(E) New development and redevelopment requirements.

(2) Reduction of pollutant loads from pollution sources.

(3) Reduction of pollutants or stream erosion due to stormwater discharge.

(4) Improvements in the quality of receiving water in accordance with water quality standards.

(c) The state board and the regional boards shall refer to the guidance document developed pursuant to subdivision (a) when establishing requirements in municipal stormwater programs and permits.

Credits

(Added by [Stats.2007, c. 610 \(A.B.739\)](#), § 6.)

West's Ann. Cal. Water Code § 13383.7, CA WATER § 13383.7

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.8

§ 13383.8. Stormwater management task force; report on implementation of priority goals and objectives of Ocean Protection Council's strategic plan

Effective: January 1, 2008

[Currentness](#)

(a) The state board shall appoint a stormwater management task force comprised of public agencies, representatives of the regulated community, and nonprofit organizations with expertise in water quality and stormwater management. The task force shall provide advice to the state board on its stormwater management program that may include, but is not limited to, program priorities, funding criteria, project selection, and interagency coordination of state programs that address stormwater management.

(b) The state board shall submit a report, including, but not limited to, stormwater and other polluted runoff control information, to the Ocean Protection Council no later than January 1, 2009, on the way in which the state board is implementing the priority goals and objectives of the council's strategic plan.

Credits

(Added by [Stats.2007, c. 610 \(A.B.739\)](#), § 7.)

West's Ann. Cal. Water Code § 13383.8, CA WATER § 13383.8

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13384

§ 13384. Applications for requirements and permits; notice to public and affected states; hearing

Currentness

The state board or the regional boards shall ensure that the public, and that any other state, the waters of which may be affected by any discharge of pollutants or dredged or fill material to navigable waters within this state, shall receive notice of each application for requirements or report of waste discharge or application for a dredged or fill material permit or report of dredged or fill material discharge and are provided an opportunity for public hearing before adoption of such requirements or permit.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 8.)

West's Ann. Cal. Water Code § 13384, CA WATER § 13384

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385

§ 13385. Violations; civil liability; applicability; compliance projects; annual report

Effective: January 1, 2012

[Currentness](#)

(a) A person who violates any of the following shall be liable civilly in accordance with this section:

(1) [Section 13375](#) or [13376](#).

(2) A waste discharge requirement or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to [Section 13160](#).

(3) A requirement established pursuant to [Section 13383](#).

(4) An order or prohibition issued pursuant to [Section 13243](#) or Article 1 (commencing with [Section 13300](#)) of Chapter 5, if the activity subject to the order or prohibition is subject to regulation under this chapter.

(5) A requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the federal Clean Water Act ([33 U.S.C. Sec. 1311](#), [1312](#), [1316](#), [1317](#), [1318](#), [1341](#), or [1345](#)), as amended.

(6) A requirement imposed in a pretreatment program approved pursuant to waste discharge requirements issued under [Section 13377](#) or approved pursuant to a permit issued by the administrator.

(b)(1) Civil liability may be imposed by the superior court in an amount not to exceed the sum of both of the following:

(A) Twenty-five thousand dollars (\$25,000) for each day in which the violation occurs.

(B) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed twenty-five dollars (\$25) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(2) The Attorney General, upon request of a regional board or the state board, shall petition the superior court to impose the liability.

(c) Civil liability may be imposed administratively by the state board or a regional board pursuant to Article 2.5 (commencing with [Section 13323](#)) of Chapter 5 in an amount not to exceed the sum of both of the following:

(1) Ten thousand dollars (\$10,000) for each day in which the violation occurs.

(2) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars (\$10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(d) For purposes of subdivisions (b) and (c), “discharge” includes any discharge to navigable waters of the United States, any introduction of pollutants into a publicly owned treatment works, or any use or disposal of sewage sludge.

(e) In determining the amount of any liability imposed under this section, the regional board, the state board, or the superior court, as the case may be, shall take into account the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require. At a minimum, liability shall be assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation.

(f)(1) Except as provided in paragraph (2), for the purposes of this section, a single operational upset that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(2)(A) For the purposes of subdivisions (h) and (i), a single operational upset in a wastewater treatment unit that treats wastewater using a biological treatment process shall be treated as a single violation, even if the operational upset results in violations of more than one effluent limitation and the violations continue for a period of more than one day, if all of the following apply:

(i) The discharger demonstrates all of the following:

(I) The upset was not caused by wastewater treatment operator error and was not due to discharger negligence.

(II) But for the operational upset of the biological treatment process, the violations would not have occurred nor would they have continued for more than one day.

(III) The discharger carried out all reasonable and immediately feasible actions to reduce noncompliance with the applicable effluent limitations.

(ii) The discharger is implementing an approved pretreatment program, if so required by federal or state law.

(B) Subparagraph (A) only applies to violations that occur during a period for which the regional board has determined that violations are unavoidable, but in no case may that period exceed 30 days.

(g) Remedies under this section are in addition to, and do not supersede or limit, any other remedies, civil or criminal, except that no liability shall be recoverable under [Section 13261](#), [13265](#), [13268](#), or [13350](#) for violations for which liability is recovered under this section.

(h)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (l), a mandatory minimum penalty of three thousand dollars (\$3,000) shall be assessed for each serious violation.

(2) For the purposes of this section, a “serious violation” means any waste discharge that violates the effluent limitations contained in the applicable waste discharge requirements for a Group II pollutant, as specified in Appendix A to [Section 123.45 of Title 40 of the Code of Federal Regulations](#), by 20 percent or more or for a Group I pollutant, as specified in Appendix A to [Section 123.45 of Title 40 of the Code of Federal Regulations](#), by 40 percent or more.

(i)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (l), a mandatory minimum penalty of three thousand dollars (\$3,000) shall be assessed for each violation whenever the person does any of the following four or more times in any period of six consecutive months, except that the requirement to assess the mandatory minimum penalty shall not be applicable to the first three violations:

(A) Violates a waste discharge requirement effluent limitation.

(B) Fails to file a report pursuant to [Section 13260](#).

(C) Files an incomplete report pursuant to [Section 13260](#).

(D) Violates a toxicity effluent limitation contained in the applicable waste discharge requirements where the waste discharge requirements do not contain pollutant-specific effluent limitations for toxic pollutants.

(2) For the purposes of this section, a “period of six consecutive months” means the period commencing on the date that one of the violations described in this subdivision occurs and ending 180 days after that date.

(j) Subdivisions (h) and (i) do not apply to any of the following:

(1) A violation caused by one or any combination of the following:

(A) An act of war.

(B) An unanticipated, grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(C) An intentional act of a third party, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(D)(i) The operation of a new or reconstructed wastewater treatment unit during a defined period of adjusting or testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit, if all of the following requirements are met:

(I) The discharger has submitted to the regional board, at least 30 days in advance of the operation, an operations plan that describes the actions the discharger will take during the period of adjusting and testing, including steps to prevent violations and identifies the shortest reasonable time required for the period of adjusting and testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit.

(II) The regional board has not objected in writing to the operations plan.

(III) The discharger demonstrates that the violations resulted from the operation of the new or reconstructed wastewater treatment unit and that the violations could not have reasonably been avoided.

(IV) The discharger demonstrates compliance with the operations plan.

(V) In the case of a reconstructed wastewater treatment unit, the unit relies on a biological treatment process that is required to be out of operation for at least 14 days in order to perform the reconstruction, or the unit is required to be out of operation for at least 14 days and, at the time of the reconstruction, the cost of reconstructing the unit exceeds 50 percent of the cost of replacing the wastewater treatment unit.

(ii) For the purposes of this section, “wastewater treatment unit” means a component of a wastewater treatment plant that performs a designated treatment function.

(2)(A) Except as provided in subparagraph (B), a violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to [Section 13301](#) or a time schedule order issued pursuant to [Section 13300](#), if all of the following requirements are met:

(i) The cease and desist order or time schedule order is issued after January 1, 1995, but not later than July 1, 2000, specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i), and the date by which compliance is required to be achieved and, if the final date by which compliance is required to be achieved is later than one year from the effective date of the cease and desist order or time schedule order, specifies the interim requirements by which progress towards compliance will be measured and the date by which the discharger will be in compliance with each interim requirement.

(ii) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan that meets the requirements of [Section 13263.3](#).

(iii) The discharger demonstrates that it has carried out all reasonable and immediately feasible actions to reduce noncompliance with the waste discharge requirements applicable to the waste discharge and the executive officer of the regional board concurs with the demonstration.

(B) Subdivisions (h) and (i) shall become applicable to a waste discharge on the date the waste discharge requirements applicable to the waste discharge are revised and reissued pursuant to [Section 13380](#), unless the regional board does all of the following on or before that date:

(i) Modifies the requirements of the cease and desist order or time schedule order as may be necessary to make it fully consistent with the reissued waste discharge requirements.

(ii) Establishes in the modified cease and desist order or time schedule order a date by which full compliance with the reissued waste discharge requirements shall be achieved. For the purposes of this subdivision, the regional board may not establish this date later than five years from the date the waste discharge requirements were required to be reviewed pursuant to [Section 13380](#). If the reissued waste discharge requirements do not add new effluent limitations or do not include effluent limitations that are more stringent than those in the original waste discharge requirements, the date shall be the same as the final date for compliance in the original cease and desist order or time schedule order or five years from the date that the waste discharge requirements were required to be reviewed pursuant to [Section 13380](#), whichever is earlier.

(iii) Determines that the pollution prevention plan required by clause (ii) of subparagraph (A) is in compliance with the requirements of [Section 13263.3](#) and that the discharger is implementing the pollution prevention plan in a timely and proper manner.

(3) A violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to [Section 13301](#) or a time schedule order issued pursuant to [Section 13300](#) or [13308](#), if all of the following requirements are met:

(A) The cease and desist order or time schedule order is issued on or after July 1, 2000, and specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i).

(B) The regional board finds that, for one of the following reasons, the discharger is not able to consistently comply with one or more of the effluent limitations established in the waste discharge requirements applicable to the waste discharge:

(i) The effluent limitation is a new, more stringent, or modified regulatory requirement that has become applicable to the waste discharge after the effective date of the waste discharge requirements and after July 1, 2000, new or modified control measures are necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

(ii) New methods for detecting or measuring a pollutant in the waste discharge demonstrate that new or modified control measures are necessary in order to comply with the effluent limitation and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

(iii) Unanticipated changes in the quality of the municipal or industrial water supply available to the discharger are the cause of unavoidable changes in the composition of the waste discharge, the changes in the composition of the waste discharge are the cause of the inability to comply with the effluent limitation, no alternative water supply is reasonably available to the discharger, and new or modified measures to control the composition of the waste discharge cannot be designed, installed, and put into operation within 30 calendar days.

(iv) The discharger is a publicly owned treatment works located in Orange County that is unable to meet effluent limitations for biological oxygen demand, suspended solids, or both, because the publicly owned treatment works meets all of the following criteria:

(I) Was previously operating under modified secondary treatment requirements pursuant to Section 301(h) of the Clean Water Act (33 U.S.C. Sec. 1311(h)).

(II) Did vote on July 17, 2002, not to apply for a renewal of the modified secondary treatment requirements.

(III) Is in the process of upgrading its treatment facilities to meet the secondary treatment standards required by Section 301(b)(1)(B) of the Clean Water Act (33 U.S.C. Sec. 1311(b)(1)(B)).

(C)(i) The regional board establishes a time schedule for bringing the waste discharge into compliance with the effluent limitation that is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the effluent limitation. Except as provided in clause (ii), for the purposes of this subdivision, the time schedule shall not exceed five years in length.

(ii)(I) For purposes of the upgrade described in subclause (III) of clause (iv) of subparagraph (B), the time schedule shall not exceed 10 years in length.

(II) Following a public hearing, and upon a showing that the discharger is making diligent progress toward bringing the waste discharge into compliance with the effluent limitation, the regional board may extend the time schedule for an additional period not exceeding five years in length, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation. This subclause does not apply to a time schedule described in subclause (I).

(iii) If the time schedule exceeds one year from the effective date of the order, the schedule shall include interim requirements and the dates for their achievement. The interim requirements shall include both of the following:

(I) Effluent limitations for the pollutant or pollutants of concern.

(II) Actions and milestones leading to compliance with the effluent limitation.

(D) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan pursuant to [Section 13263.3](#).

(k)(1) In lieu of assessing all or a portion of the mandatory minimum penalties pursuant to subdivisions (h) and (i) against a publicly owned treatment works serving a small community, the state board or the regional board may elect to require the publicly owned treatment works to spend an equivalent amount towards the completion of a compliance project proposed by the publicly owned treatment works, if the state board or the regional board finds all of the following:

(A) The compliance project is designed to correct the violations within five years.

(B) The compliance project is in accordance with the enforcement policy of the state board, excluding any provision in the policy that is inconsistent with this section.

(C) The publicly owned treatment works has prepared a financing plan to complete the compliance project.

(2) For the purposes of this subdivision, “a publicly owned treatment works serving a small community” means a publicly owned treatment works serving a population of 10,000 persons or fewer or a rural county, with a financial hardship as determined by the state board after considering such factors as median income of the residents, rate of unemployment, or low population density in the service area of the publicly owned treatment works.

(l)(1) In lieu of assessing penalties pursuant to subdivision (h) or (i), the state board or the regional board, with the concurrence of the discharger, may direct a portion of the penalty amount to be expended on a supplemental environmental project in accordance with the enforcement policy of the state board. If the penalty amount exceeds fifteen thousand dollars (\$15,000), the portion of the penalty amount that may be directed to be expended on a supplemental environmental project may not exceed fifteen thousand dollars (\$15,000) plus 50 percent of the penalty amount that exceeds fifteen thousand dollars (\$15,000).

(2) For the purposes of this section, a “supplemental environmental project” means an environmentally beneficial project that a person agrees to undertake, with the approval of the regional board, that would not be undertaken in the absence of an enforcement action under this section.

(3) This subdivision applies to the imposition of penalties pursuant to subdivision (h) or (i) on or after January 1, 2003, without regard to the date on which the violation occurs.

(m) The Attorney General, upon request of a regional board or the state board, shall petition the appropriate court to collect any liability or penalty imposed pursuant to this section. Any person who fails to pay on a timely basis any liability or penalty imposed under this section shall be required to pay, in addition to that liability or penalty, interest, attorney's fees, costs for collection proceedings, and a quarterly nonpayment penalty for each quarter during which the

failure to pay persists. The nonpayment penalty shall be in an amount equal to 20 percent of the aggregate amount of the person's penalty and nonpayment penalties that are unpaid as of the beginning of the quarter.

(n)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2)(A) Notwithstanding any other provision of law, moneys collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the federal Clean Water Act ([33 U.S.C. Sec. 1341](#)) in accordance with paragraph (5) of subdivision (a) shall be deposited in the Waste Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state or for the purposes authorized in [Section 13443](#).

(o) The state board shall continuously report and update information on its Internet Web site, but at a minimum, annually on or before January 1, regarding its enforcement activities. The information shall include all of the following:

(1) A compilation of the number of violations of waste discharge requirements in the previous calendar year, including stormwater enforcement violations.

(2) A record of the formal and informal compliance and enforcement actions taken for each violation, including stormwater enforcement actions.

(3) An analysis of the effectiveness of current enforcement policies, including mandatory minimum penalties.

(p) The amendments made to subdivisions (f), (h), (i), and (j) during the second year of the 2001-02 Regular Session apply only to violations that occur on or after January 1, 2003.

Credits

(Added by [Stats.1987, c. 1189, § 10](#). Amended by [Stats.1999, c. 92 \(A.B.1104\), § 6](#); [Stats.1999, c. 93 \(S.B.709\), § 6](#); [Stats.2000, c. 807 \(S.B.2165\), § 2](#); [Stats.2001, c. 869 \(A.B.1664\), § 7](#); [Stats.2002, c. 995 \(A.B.2351\), § 1](#); [Stats.2002, c. 1019 \(A.B.1969\), § 2](#), eff. Sept. 28, 2002; [Stats.2002, c. 1019 \(A.B.1969\), § 3](#), eff. Sept. 28, 2002, operative Jan. 1, 2003; [Stats.2003, c. 683 \(A.B.897\), § 7](#); [Stats.2004, c. 644 \(A.B.2701\), § 41](#); [Stats.2006, c. 404 \(S.B.1733\), § 3](#); [Stats.2007, c. 130 \(A.B.299\), § 239](#); [Stats.2010, c. 645 \(S.B.1284\), § 1](#); [Stats.2011, c. 296 \(A.B.1023\), § 314](#).)

[Notes of Decisions \(9\)](#)

West's Ann. Cal. Water Code § 13385, CA WATER § 13385

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.1

§ 13385.1. Discharge monitoring reports; serious violation; time to file report and penalties for failure to file; deposit and expenditure of penalty funds; “effluent limitation” defined

Effective: January 1, 2011

[Currentness](#)

(a)(1) For the purposes of [subdivision \(h\) of Section 13385](#), a “serious violation” also means a failure to file a discharge monitoring report required pursuant to [Section 13383](#) for each complete period of 30 days following the deadline for submitting the report, if the report is designed to ensure compliance with limitations contained in waste discharge requirements that contain effluent limitations. This paragraph applies only to violations that occur on or after January 1, 2004.

(2)(A) Notwithstanding paragraph (1), a failure to file a discharge monitoring report is not a serious violation for purposes of [subdivision \(h\) of Section 13385](#) at any time prior to the date a discharge monitoring report is required to be filed or within 30 days after receiving written notice from the state board or a regional board of the need to file a discharge monitoring report, if the discharger submits a written statement to the state board or the regional board that includes both of the following:

(i) A statement that there were no discharges to waters of the United States reportable under the applicable waste discharge requirements during the relevant monitoring period.

(ii) The reason or reasons the required report was not submitted to the regional board by the deadline for filing that report.

(B) Upon the request of the state board or regional board, the discharger may be required to support the statement with additional explanation or evidence.

(C) If, in a statement submitted pursuant to subparagraph (A), the discharger willfully states as true any material fact that he or she knows to be false, that person shall be subject to a civil penalty not exceeding ten thousand dollars (\$10,000). Any public prosecutor may bring an action for a civil penalty under this subparagraph in the name of the people of the State of California, and the penalty imposed shall be enforced as a civil judgment.

(D) Notwithstanding subparagraph (A), the failure to file a discharge monitoring report is subject to penalties in accordance with [subdivisions \(c\) and \(e\) of Section 13385](#).

(b)(1) Notwithstanding paragraph (1) of subdivision (a), a mandatory minimum penalty shall continue to apply and shall be assessed pursuant to [subdivision \(h\) of Section 13385](#), but only for each required report that is not timely filed, and shall not be separately assessed for each 30-day period following the deadline for submitting the report, if both of the following conditions are met:

(A) The discharger did not on any occasion previously receive, from the state board or a regional board, a complaint to impose liability pursuant to [subdivision \(b\) or \(c\) of Section 13385](#) arising from a failure to timely file a discharge monitoring report, a notice of violation for failure to timely file a discharge monitoring report, or a notice of the obligation to file a discharge monitoring report required pursuant to [Section 13383](#), in connection with its corresponding waste discharge requirements.

(B) The discharges during the period or periods covered by the report do not violate effluent limitations, as defined in subdivision (d), contained in waste discharge requirements.

(2) Paragraph (1) shall only apply to a discharger who does both of the following:

(A) Files a discharge monitoring report that had not previously been timely filed within 30 days after the discharger receives written notice, including notice transmitted by electronic mail, from the state board or regional board concerning the failure to timely file the report.

(B) Pays all penalties assessed by the state board or regional board in accordance with paragraph (1) within 30 days after an order is issued to pay these penalties pursuant to [Section 13385](#).

(3) Notwithstanding paragraph (1), the failure to file a discharge monitoring report is subject to penalties in accordance with [subdivisions \(c\) and \(e\) of Section 13385](#).

(4) This subdivision shall become inoperative on January 1, 2014.

(c)(1) Notwithstanding any other provision of law, moneys collected pursuant to this section for a failure to timely file a report, as described in subdivision (a), shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2) Notwithstanding [Section 13340 of the Government Code](#), the funds described in paragraph (1) are continuously appropriated, without regard to fiscal years, to the state board for expenditure by the state board to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in responding to significant water pollution problems.

(d) For the purposes of this section, [paragraph \(2\) of subdivision \(f\) of Section 13385](#), and [subdivisions \(h\), \(i\), and \(j\) of Section 13385](#) only, “effluent limitation” means a numeric restriction or a numerically expressed narrative restriction, on the quantity, discharge rate, concentration, or toxicity units of a pollutant or pollutants that may be discharged from an authorized location. An effluent limitation may be final or interim, and may be expressed as a prohibition. An

effluent limitation, for those purposes, does not include a receiving water limitation, a compliance schedule, or a best management practice.

(e) The amendments made to this section by Senate Bill 1284 of the 2009-10 Regular Session of the Legislature shall apply to violations for which an administrative civil liability complaint or a judicial complaint has not been filed before July 1, 2010, without regard to the date on which the violations occurred.

Credits

(Added by Stats.2003, c. 609 (A.B.1541), § 1. Amended by Stats.2005, c. 145 (A.B.495), § 1; Stats.2006, c. 538 (S.B.1852), § 677; Stats.2008, c. 760 (A.B.1338), § 23, eff. Sept. 30, 2008; Stats.2010, c. 645 (S.B.1284), § 2.)

Editors' Notes

APPLICATION

<For application of the amendment by Stats.2010, c. 645 (S.B.1284), see the terms of this section.>

West's Ann. Cal. Water Code § 13385.1, CA WATER § 13385.1

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.2

§ 13385.2. Publicly owned treatment works (POTW) to demonstrate that financing plan is designed to generate sufficient funding to complete compliance program

Effective: September 29, 2006

[Currentness](#)

(a) Prior to the state board or regional board making its findings pursuant to [subdivision \(k\) of Section 13385](#), the publicly owned treatment works shall demonstrate to the satisfaction of the state board or regional board that the financing plan prepared pursuant to subparagraph (C) of paragraph (1) of subdivision (k) of that section is designed to generate sufficient funding to complete the compliance project within the time period specified pursuant to subparagraph (A) of paragraph (1) of subdivision (k) of that section.

(b) This section shall only become operative if Senate Bill 1733¹ of the 2005-06 Regular Session is enacted and becomes operative.

Credits

(Added by [Stats.2006, c. 725 \(A.B.1752\)](#), § 1, eff. Sept. 29, 2006.)

Editors' Notes

OPERATIVE EFFECT

<For operative effect of this section, see its terms.>

Footnotes

¹ [Stats.2006, c. 404 \(S.B.1733\)](#).

West's Ann. Cal. Water Code § 13385.2, CA WATER § 13385.2

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13385.3

§ 13385.3. Operative effect

Effective: September 29, 2006

[Currentness](#)

(a) The amendments made to [subdivision \(k\) of Section 13385 of the Water Code](#) by Senate Bill 1733¹ of the 2005-06 Regular Session shall become operative on July 1, 2007.

(b) This section shall only become operative if Senate Bill 1733 of the 2005-06 Regular Session is enacted and becomes operative.

Credits

(Added by [Stats.2006, c. 725 \(A.B.1752\)](#), § 2, eff. Sept. 29, 2006.)

Footnotes

¹ [Stats.2006, c. 404 \(S.B.1733\)](#).

West's Ann. Cal. Water Code § 13385.3, CA WATER § 13385.3

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13386

§ 13386. Threatened or continuing violations or failure of discharger to comply with cost or charge; injunctions

[Currentness](#)

Upon any threatened or continuing violation of any of the requirements listed in [paragraphs \(1\) to \(6\), inclusive, of subdivision \(a\) of Section 13385](#), or upon the failure of any discharger into a public treatment system to comply with any cost or charge adopted by any public agency under Section 204(b) of the Federal Water Pollution Control Act, as amended,¹ the Attorney General, upon the request of the state board or regional board shall petition the appropriate court for the issuance of a preliminary or permanent injunction, or both, as appropriate, restraining that person or persons from committing or continuing the violation. Subdivision (b) of [Section 13331](#) shall be applicable to proceedings under this section.

Credits

(Added by [Stats.1987, c. 1189, § 12](#). Amended by [Stats.1996, c. 659 \(A.B.3036\), § 27](#).)

Footnotes

¹ [33 U.S.C.A. § 1284\(b\)](#).

West's Ann. Cal. Water Code § 13386, CA WATER § 13386

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13387

§ 13387. Violations; criminal penalties

Effective: October 1, 2011

[Currentness](#)

(a) Any person who knowingly or negligently does any of the following is subject to criminal penalties as provided in subdivisions (b), (c), and (d):

(1) Violates [Section 13375](#) or [13376](#).

(2) Violates any waste discharge requirements or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to [Section 13160](#).

(3) Violates any order or prohibition issued pursuant to [Section 13243](#) or [13301](#), if the activity subject to the order or prohibition is subject to regulation under this chapter.

(4) Violates any requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the Clean Water Act ([33 U.S.C. Sec. 1311](#), [1312](#), [1316](#), [1317](#), [1318](#), [1328](#), [1341](#), or [1345](#)), as amended.

(5) Introduces into a sewer system or into a publicly owned treatment works any pollutant or hazardous substances that the person knew or reasonably should have known could cause personal injury or property damage.

(6) Introduces any pollutant or hazardous substance into a sewer system or into a publicly owned treatment works, except in accordance with any applicable pretreatment requirements, which causes the treatment works to violate waste discharge requirements.

(b) Any person who negligently commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000), nor more than twenty-five thousand dollars (\$25,000), for each day in which the violation occurs, by imprisonment for not more than one year in a county jail, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, subdivision (c), or subdivision (d), punishment shall be by a fine of not more than fifty thousand dollars (\$50,000) for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 16, 20, or 24 months, or by both that fine and imprisonment.

(c) Any person who knowingly commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars (\$5,000), nor more than fifty thousand dollars (\$50,000), for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#), or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision or subdivision (d), punishment shall be by a fine of not more than one hundred thousand dollars (\$100,000) for each day in which the violation occurs, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for two, four, or six years, or by both that fine and imprisonment.

(d)(1) Any person who knowingly commits any of the violations set forth in subdivision (a), and who knows at the time that the person thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be punished by a fine of not more than two hundred fifty thousand dollars (\$250,000), imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 5, 10, or 15 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction under this subdivision, be subject to a fine of not more than one million dollars (\$1,000,000). If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, the punishment shall be by a fine of not more than five hundred thousand dollars (\$500,000), by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 10, 20, or 30 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction for a violation committed after a first conviction of the person under this subdivision, be subject to a fine of not more than two million dollars (\$2,000,000). Any fines imposed pursuant to this subdivision shall be in addition to any fines imposed pursuant to subdivision (c).

(2) In determining whether a defendant who is an individual knew that the defendant's conduct placed another person in imminent danger of death or serious bodily injury, the defendant is responsible only for actual awareness or actual belief that the defendant possessed, and knowledge possessed by a person other than the defendant, but not by the defendant personally, cannot be attributed to the defendant.

(e) Any person who knowingly makes any false statement, representation, or certification in any record, report, plan, notice to comply, or other document filed with a regional board or the state board, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required under this division shall be punished by a fine of not more than twenty-five thousand dollars (\$25,000), by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for 16, 20, or 24 months, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, punishment shall be by a fine of not more than twenty-five thousand dollars (\$25,000) per day of violation, by imprisonment pursuant to [subdivision \(h\) of Section 1170 of the Penal Code](#) for two, three, or four years, or by both that fine and imprisonment.

(f) For purposes of this section, a single operational upset which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(g) For purposes of this section, "organization," "serious bodily injury," "person," and "hazardous substance" shall have the same meaning as in Section 309(c) of the Clean Water Act ([33 U.S.C. Sec. 1319\(c\)](#)), as amended.

(h)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2)(A) Notwithstanding any other provision of law, fines collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341) in accordance with paragraph (4) of subdivision (a) shall be deposited in the Water Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state, or for the purposes authorized in Section 13443.

Credits

(Added by Stats.1987, c. 1189, § 14. Amended by Stats.1996, c. 775 (A.B.2937), § 5; Stats.2001, c. 869 (A.B.1664), § 8; Stats.2003, c. 683 (A.B.897), § 8; Stats.2004, c. 183 (A.B.3082), § 362; Stats.2005, c. 22 (S.B.1108), § 211; Stats.2006, c. 347 (A.B.2367), § 23; Stats.2011, c. 15 (A.B.109), § 616, eff. April 4, 2011, operative Oct. 1, 2011.)

Notes of Decisions (20)

West's Ann. Cal. Water Code § 13387, CA WATER § 13387

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13388

§ 13388. Board members; disqualification if income from person subject to requirements

Effective: June 27, 2012

[Currentness](#)

(a) Notwithstanding any other provision of this division or [Section 175](#), and except as provided in subdivision (b), a person shall not be a member of the state board or a regional board if that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from any person subject to waste discharge requirements or applicants for waste discharge requirements pursuant to this chapter.

(b)(1) A person shall not be disqualified from being a member of a regional board because that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from a person subject to waste discharge requirements, or an applicant for waste discharge requirements, that are issued pursuant to this chapter by the state board or regional board other than the regional board of which that person is a member.

(2) Paragraph (1) shall be implemented only if the United States Environmental Protection Agency either determines that no program approval is necessary for that implementation, or approves of a change in California's National Pollutant Discharge Elimination System program, to allow the state to administer the National Pollutant Discharge Elimination System permit program consistent with paragraph (1).

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972, operative March 1, 1973. Amended by [Stats.2012, c. 39 \(S.B.1018\)](#), § 121, eff. [June 27, 2012](#).)

[Notes of Decisions \(1\)](#)

West's Ann. Cal. Water Code § 13388, CA WATER § 13388

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

West's Annotated California Codes

Water Code (Refs & Annos)

Division 7. Water Quality (Refs & Annos)

Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13389

§ 13389. Applicability of environmental impact reports

[Currentness](#)

Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with [Section 21100](#)) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.

Credits

(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

[Notes of Decisions \(3\)](#)

West's Ann. Cal. Water Code § 13389, CA WATER § 13389

Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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ATTACHMENT

2

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WESTLAW California Code of Regulations[Home](#) [Table of Contents](#)**§ 2235.2. Compliance with Regulations of the U.S. Environmental Protection Agency.**

23 CA ADC § 2235.2

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

Barclays Official California Code of Regulations [Currentness](#)

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 9. Waste Discharge Reports and Requirements

Article 3. Waste Discharges from Point Sources to Navigable Waters

23 CCR § 2235.2

§ 2235.2. Compliance with Regulations of the U.S. Environmental Protection Agency.

Waste discharge requirements for discharge from point sources to navigable waters shall be issued and administered in accordance with the currently applicable federal regulations for the National Pollutant Discharge Elimination System (NPDES) program.

Note: Authority cited: Section 1058, Water Code. Reference: Chapter 5.5 (commencing with Section 13370) of Division 7, Water Code.

This database is current through 9/23/16 Register 2016, No. 39

23 CCR § 2235.2, 23 CA ADC § 2235.2

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ATTACHMENT

3

THOMSON REUTERS

WESTLAW California Code of Regulations[Home](#) [Table of Contents](#)**§ 2235.3. Additional Requirements.**

23 CA ADC § 2235.3

BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

Barclays Official California Code of Regulations [Currentness](#)

Title 23. Waters

Division 3. State Water Resources Control Board and Regional Water Quality Control Boards

Chapter 9. Waste Discharge Reports and Requirements

Article 3. Waste Discharges from Point Sources to Navigable Waters

23 CCR § 2235.3

§ 2235.3. Additional Requirements.

In addition to the federal regulations, waste discharge requirements prescribed for discharges to navigable water shall be in compliance with applicable state regulations, including, when appropriate, the requirements of Sections 2230(c), 2232 and 2233.

Note: Authority cited: Sections 185 and 1058, Water Code. Reference: Section 13263, Water Code.

HISTORY

1. Amendment filed 4-16-82; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 82, No. 16).

This database is current through 9/23/16 Register 2016, No. 39


23 CCR § 2235.3, 23 CA ADC § 2235.3

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ATTACHMENT

4

 KeyCite Yellow Flag - Negative Treatment
Not Followed on State Law Grounds [Michigan Farm Bureau v. Dep't of Environmental Quality](#), Mich.App., March 29, 2011

399 F.3d 486

United States Court of Appeals,
Second Circuit.

WATERKEEPER ALLIANCE, INC., American Farm
Bureau Federation, [National Chicken Council](#),
National Pork Producers Council, American Littoral
Society, Sierra Club, Inc., Natural Resources
Defense Council, Inc., Petitioners/Intervenors,

v.

[UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY](#), Michael O.
Leavitt, Administrator, [United States
Environmental Protection Agency](#) Respondents.

Docket Nos. 03-4470 (L), 03-
4621(C), 03-4631(C), 03-4641(C), 03-
4849(C), 04-40199(C), 03-40229(C).

|
Argued: Dec. 13, 2004.

|
Decided: Feb. 28, 2005.

Synopsis

Background: Various environmental groups and farm groups brought multiple challenges to administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) in order to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO).

Holdings: The Court of Appeals, [Katzmann](#), Circuit Judge, held that:

[1] provision of rule allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA;

[2] permitting scheme established by rule promulgated violated the CWA's public participation requirements;

[3] regulatory exemption for agricultural stormwater discharges did not violate the CWA;

[4] EPA acted reasonably in choosing as best available technology for beef and cattle CAFOs an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed;


[5] EPA acted reasonably in rejecting as best available technology for swine, poultry, and veal CAFOs an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances;

[6] EPA's failure to impose best conventional pollutant control technology effluent limitation guidelines specifically designed to reduce pathogens in CAFO's violated the CWA; and

[7] new source performance standards for the production areas of swine, poultry, and veal CAFOs violated the CWA.

So ordered.

West Headnotes (16)

[1] [Administrative Law and Procedure](#)
 [Arbitrary, unreasonable or capricious action; illegality](#)

To determine whether an agency has acted in an arbitrary and capricious fashion, an appellate court must ask whether the agency has examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made.

[2 Cases that cite this headnote](#)

[2] [Administrative Law and Procedure](#)
 [Validity](#)

Normally, an appellate court must deem arbitrary and capricious an agency rule where the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect

of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

[2 Cases that cite this headnote](#)

[3] Environmental Law

🔑 Discharge of pollutants

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA requiring permitting authorities to assure compliance with all effluent limitations and standards for land applications of manure, litter, and process waste water, and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA). Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, [33 U.S.C.A. § 1251 et seq.](#); [40 C.F.R. § 122.23\(d\)\(2\)](#).

[4 Cases that cite this headnote](#)

[4] Environmental Law

🔑 Discharge of pollutants

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits that did not include the terms of nutrient management plans violated CWA requirement that effluent limitations must be included in the permits, and was otherwise arbitrary and capricious. Federal Water Pollution Control Act Amendments of 1972, §§ 301(a, b), 402(a), as amended, [33 U.S.C.A. §§ 1311\(a, b\), 1342\(a\)](#).

[11 Cases that cite this headnote](#)

[5] Environmental Law

🔑 Discharge of pollutants

Environmental Law

🔑 Notice and comment

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations violated the CWA's public participation requirements and was otherwise arbitrary and capricious under the Administrative Procedure Act; although the preamble to the rule indicated that the EPA expected that the permitting authority would make the information available to the public upon request, the rule provided no assurance that the EPA's expectations would be satisfied. [5 U.S.C.A. § 551 et seq.](#); Federal Water Pollution Control Act Amendments of 1972, §§ 101(e), 402(a, j), as amended, [33 U.S.C.A. §§ 1251\(e\), 1342\(a, j\)](#); [40 C.F.R. § 122.42\(e\)\(2\)\(ii\)](#).

[4 Cases that cite this headnote](#)

[6] Environmental Law

🔑 Discharge of pollutants

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), requiring that every CAFO owner or operator either apply for a permit, and comply with the effluent limitations contained in the permit, or affirmatively demonstrate that no permit was needed because there was no potential to discharge, exceeded statutory authority granted by the CWA to regulate and control the actual discharge of pollutants; the CWA gave the EPA the authority to regulate only actual discharges,

not potential discharges and not point sources themselves. Federal Water Pollution Control Act Amendments of 1972, §§ 301(e), 402, 502(12, 14), as amended, 33 U.S.C.A. §§ 1311(e), 1342; 1362(12, 14); 40 C.F.R. §§ 122.23(d), 122.23(f).

[24 Cases that cite this headnote](#)

[7] Environmental Law

🔑 Discharge of pollutants

Regulatory exemption for agricultural stormwater discharges contained in rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations did not violate the CWA. Federal Water Pollution Control Act Amendments of 1972, § 502, as amended, 33 U.S.C.A. § 1362; 40 C.F.R. § 122.23(e).

[1 Cases that cite this headnote](#)

[8] Environmental Law

🔑 Substances, Sources, and Activities Regulated

Any discharge from a land area under the control of a concentrated animal feeding operation, regardless of whether the discharge is collected at the land application area itself, is a “point source discharge” subject to regulation under rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.; 40 C.F.R. § 122.23(e).

[12 Cases that cite this headnote](#)

[9] Environmental Law

🔑 Particular limitations and guidelines

In setting best available technology (BAT) standards for determining effluent

limitation guidelines (ELG), for purposes of rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), the EPA complied with statutory duties, notwithstanding that the rule did not explicitly identify the single, existing best-performing CAFO in each category or subcategory of the rule; the EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that a specific option was the best candidate for BAT, because all the other options considered either did not perform better than that option, were not adequately supported in science, or were not economically achievable. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

[5 Cases that cite this headnote](#)

[10] Environmental Law

🔑 Particular limitations and guidelines

Environmental Protection Agency (EPA) acted reasonably in choosing as best available technology for beef and cattle concentrated animal feeding operations (CAFOs) an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed, when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by CAFOs; studies showed that variability in topography, climate, distance to surface water, and geologic facts influenced whether and how pollutant discharges at a particular site entered surface water via groundwater, and EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close were the option requiring uniform, rather than case-by-case implementation, adopted. Federal Water Pollution Control

Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

[1 Cases that cite this headnote](#)

[11] Environmental Law

[Particular limitations and guidelines](#)

Environmental Protection Agency (EPA) acted reasonably in rejecting as best available technology for swine, poultry, and veal concentrated animal feeding operations an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO); after conducting extensive economic analysis, involving numerous economic tests and modeling, the EPA determined that such an option would render 17 percent of swine CAFOs and 11 percent of the CAFOs, on the whole, vulnerable to closure. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(B), as amended, 33 U.S.C.A. § 1314(b)(2)(B).

[3 Cases that cite this headnote](#)

[12] Environmental Law

[Scope of Inquiry on Review of Administrative Decision](#)

A reviewing court can neither second-guess Environmental Protection Agency's (EPA) analysis nor undertake its own economic study; rather, the court must uphold regulations if EPA has established in the record a reasonable basis for its decision.

[Cases that cite this headnote](#)

[13] Environmental Law

[Particular limitations and guidelines](#)

Environmental Protection Agency's (EPA) failure to impose best conventional pollutant control technology (BCT) effluent limitation guidelines (ELGs) specifically designed to

reduce pathogens in concentrated animal feeding operations, when promulgating rule under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(A), as amended, 33 U.S.C.A. § 1314(b)(2)(A).

[5 Cases that cite this headnote](#)

[14] Environmental Law

[Particular limitations and guidelines](#)

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations (CAFOs) allowing the CAFOs to comply with total prohibition against production area discharges by designing, operating, and maintaining a facility to contain the runoff from a 100-year, 24-hour rainfall event violated the Clean Water Act; the EPA never modeled the potential overflows and pollutant loads from a system with a 100-year, 24-hour storm event, and while certain studies may have shown that the rule would have substantially prevented production area discharges, substantially preventing discharges was not the same as prohibiting them outright. Federal Water Pollution Control Act Amendments of 1972, § 306, as amended, 33 U.S.C.A. § 1316.

[2 Cases that cite this headnote](#)

[15] Environmental Law

[Notice and comment](#)

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations violated the Clean Water Act's public participation requirements, given that the Environmental Protection Agency (EPA) introduced a change to the standard that was not subject to public comment. Federal Water Pollution Control Act Amendments of 1972, § 101(e), as amended, 33 U.S.C.A. § 1251(e).

[Cases that cite this headnote](#)

[16] Environmental Law

🔑 [Particular limitations and guidelines](#)

Environmental Law

🔑 [Discharge of pollutants](#)

Rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA), to the extent that the EPA failed to justify the lack of water quality based effluent limitations (WQBELs) for concentrated animal feeding operations discharges other than agricultural stormwater discharges. [5 U.S.C.A. § 551 et seq.](#); Federal Water Pollution Control Act Amendments of 1972, § 302(a), as amended, [33 U.S.C.A. § 1312\(a\)](#); [40 C.F.R. § 122.23\(e\)](#).

[7 Cases that cite this headnote](#)

West Codenotes

Held Invalid

[40 C.F.R. § 122.23\(d\)](#), [\(d\)\(2\)](#), [\(f\)](#) [40 C.F.R. § 122.42\(e\)\(2\)](#)
[\(ii\)](#) [40 C.F.R. § 412.46](#)

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Before: [OAKES](#), [KATZMANN](#), and [WESLEY](#), Circuit Judges.

Opinion

[KATZMANN](#), Circuit Judge.

In this consolidated petition, we review various challenges to a regulation promulgated by the United States Environmental Protection Agency under the Clean Water Act in order to abate and control the emission of water pollutants from concentrated animal feeding operations. While we deny many of the challenges here brought, we find that several aspects of the regulation violate the express terms of the Clean Water Act or are otherwise arbitrary and capricious under the Administrative Procedure Act. Accordingly, we grant the petitions in part and deny the petitions in part.

BACKGROUND

A. Statutory Background

The Clean Water Act (the “Act”) is a cornerstone of the federal effort to protect the environment. “[D]esigned to ‘restore and maintain the chemical, physical, and biological integrity of the Nation’s waters,’ ” *No Spray Coalition, Inc. v. City of New York*, [351 F.3d 602, 604 \(2d Cir.2003\)](#) (quoting [33 U.S.C. § 1251\(a\)](#)), the Act is the principal legislative source of the EPA’s authority—

and responsibility—to abate and control water pollution. See 33 U.S.C. §§ 1311(a), 1342, 1362.

By way of very brief overview, the Act formally prohibits the “discharge of a pollutant”¹ by “any person”² from any “point source”³ to navigable waters except when authorized by a permit issued under the National Pollutant Discharge Elimination System (“NPDES”). See 33 U.S.C. §§ 1311(a), 1342. This means, as a practical matter, that the EPA primarily advances the Act’s objectives—including the ambitious goal that water pollution be not only reduced, but eliminated, see 33 U.S.C. § 1251(a)(1)—through the use of NPDES permits that, while authorizing some water pollution, place important restrictions on the quality and character of that licit pollution.

NPDES permits are issued either by the EPA, itself, or by the states in a federally approved permitting system. See 33 U.S.C. § 1342. Regardless of the issuer, every NPDES permit is statutorily required to set forth, at the very least, “effluent limitations,” that is, certain “restriction[s] ... on [the] quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters.” *S. Florida Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 124 S.Ct. 1537, 1541, 158 L.Ed.2d 264 (2004) (“Generally speaking, the NPDES requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation’s waters.”).

The specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general “effluent limitation guidelines” (“ELGs”), which are separately promulgated by the EPA. Cf. *EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976) (“An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger.”). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution. They are technology-based, because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. We will

discuss these with greater detail below. For now, we note simply that the technology standards for already existing point sources include (1) the best available technology economically achievable, see 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology, see 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable *492 control technology currently available, see 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available demonstrated control technology, see 33 U.S.C. § 1316.

We also note that where effluent limitations prove insufficient to attain or maintain certain water quality standards, the Act requires NPDES permits to include additional water quality based effluent limitations. See 33 U.S.C. §§ 1311(b)(1), 1312(a). Overall, we hope to make clear that the NPDES permit is critical to the successful implementation of the Act because—by setting forth technology-based effluent limitations and, in certain cases, additional water quality based effluent limitations—the NPDES permit “defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger’s obligations under the [Act].” *California, ex rel. State Water Res. Control Bd.*, 426 U.S. at 205, 96 S.Ct. 2022.

B. Regulatory Background

In the consolidated petition before us, we are asked to review, *inter alia*, the permitting requirements and effluent limitation guidelines promulgated by the EPA in its attempt to regulate the emission of water pollutants from so-called concentrated animal feeding operations (“CAFOs”). Before reviewing these challenges, however, a few introductory words about CAFOs themselves are in order.

CAFOs are the largest of the nation’s 238,000 or so “animal feeding operations”—“agriculture enterprises where animals are kept and raised in confinement.” *National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations*, 68 Fed.Reg. 7176, 7179 (Feb. 12, 2003) (codified at 40 C.F.R. Parts 9, 122, 123 and 412) [hereinafter “Preamble to the Final Rule”].⁴ Such “agriculture enterprises” are not, however, of a kind the Founding Fathers likely would have envisioned populating America’s “yeoman

republic.” See generally, STANLEY ELKINS AND ERIC MCKITRICK, *Jefferson and the Yeoman Republic, THE AGE OF FEDERALISM 195–208* (1972). On the contrary, CAFOs are large-scale industrial operations that raise extraordinary numbers of livestock.⁵ For example, a “Medium CAFO”⁶ raises as many as *493 9,999 sheep, 54,999 turkeys, or 124,999 chickens (other than laying hens).⁷ “Large CAFOs”⁸ raise even more staggering numbers of livestock—sometimes, raising literally millions of animals in one location.

Economically, these CAFOs generate billions of dollars of revenue every year.⁹ The EPA has focused on the industry because CAFOs also generate millions of tons of manure every year,¹⁰ and “when improperly managed, [this manure] can *494 pose substantial risks to the environment and public health.” Preamble to the Final Rule at 7179.

Animal waste includes a number of potentially harmful pollutants. According to the EPA, the pollutants associated with CAFO waste principally include: (1) nutrients such as nitrogen and phosphorus; (2) organic matter; (3) solids, including the manure itself and other elements mixed with it such as spilled feed, bedding and litter materials, hair, feathers and animal corpses; (4) pathogens (disease-causing organisms such as bacteria and viruses); (5) salts; (6) trace elements such as arsenic; (7) odorous/volatile compounds such as carbon dioxide, methane, hydrogen sulfide, and ammonia; (8) antibiotics; and (9) pesticides and hormones. See [National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations](#), 66 Fed.Reg. 2960, 2976–79 (proposed Jan. 12, 2001) [hereinafter “Proposed Rule”]; see also Preamble to the Final Rule at 7181.

These pollutants can infiltrate the surface waters in a variety of ways including spills and other dry-weather discharges, overflows from storage “lagoons,” and discharge to the air coupled with subsequent redeposition on the landscape. See Preamble to the Final Rule at 7181. Perhaps the most common way by which pollutants reach the surface waters is through improper “land application.” Land application, the predominant means by which CAFOs dispose of animal waste,¹¹ is a process by which manure, litter, and other process wastewaters

are spread onto fields controlled by CAFOs. As all parties here agree, when properly land-applied, manure, litter, and other process wastewaters can act as a fertilizer, because “land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). However, when waste is excessively or improperly land-applied, the nutrients contained in the waste become pollutants that can and often do run off into adjacent waterways or leach into soil and ground water. See *id.*; Preamble to the Final Rule at 7180–81.

In light of these environmental threats, the EPA first promulgated regulations for CAFOs in 1974 and 1976—regulations that, very generally speaking, defined the types of animal feeding operations that qualify as CAFOs, set forth various NPDES permit requirements, and established effluent limitation guidelines for CAFOs. See [41 Fed.Reg. 11,458](#) (Mar. 18, 1976); [39 Fed.Reg. 5704](#) (Feb. 14, 1974). After having been sued, in 1989, for failing to publish a plan to revise existing effluent limitations for the industry pursuant to [33 U.S.C. § 1314\(m\)](#),¹² the EPA, on January 12, 2001, proposed to “revise and update” the first set of CAFO regulations. See Proposed Rule at 2960. The EPA explained, in proposing its revisions, that the new rule aimed to address not only inadequate compliance with existing policy, but also the “changes that have occurred in the animal production industries.” Proposed *495 Rule at 2972. Specifically, the EPA pointed to the “continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization,” a trend that—along with “increased reports of large-scale discharges from these facilities” and “continued runoff”—had contributed to “the significant increase in nutrients and resulting impairment of many U.S. waterways.” *Id.*

The EPA received approximately 11,000 public comments on the proposed rule, see Preamble to the Final Rule at 7187, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). See *id.* at 7187–88. Ultimately, on February 12, 2003, the EPA promulgated its Final CAFO Rule (“CAFO Rule” or “Rule”). See [40 C.F.R. §§ 9, 122, 123, 412](#); see also Preamble to the Final Rule at 7176.

The aspects of the Rule most relevant to the petitions before us are as follows:

(1) *The Duty to Apply for an NPDES Permit*

The Rule requires that all CAFO owners or operators must apply for an individual NPDES permit or submit a notice of intent for coverage under an NPDES general permit. See 40 C.F.R. § 122.23(d)(1). There is, however, an exception: Section 122.23(d)(2) provides, in effect, that an owner or operator of a Large CAFO need not seek coverage under an NPDES permit if the owner or operator secures a determination from the director of the relevant permitting authority that the Large CAFO has “no potential to discharge” manure, litter or process wastewater. See 40 C.F.R. § 122.23(d)(2); see also *id.* at § 122.23(f) (describing the process by which a Large CAFO may secure a determination that it has “no potential to discharge”).

(2) *NPDES Permit Requirements*

The Rule includes the requirement that each CAFO develop and implement a nutrient management plan. Such a nutrient management plan must, under the Rule:

- (i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
- (ii) Ensure proper management of mortalities (i.e. dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
- (iii) Ensure that clean water is diverted, as appropriate, from the production area;
- (iv) Prevent direct contact of confined animals with waters of the United States;
- (v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;

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

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

(viii) Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient *496 management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater; and

(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described [above].

40 C.F.R. § 122.42(e)(1)(i)-(ix). Additionally, the effluent limitation guidelines for CAFOs (which we will describe in a moment) further require that each Large CAFO develop and implement a nutrient management plan that, *inter alia*, includes a waste “application rate” that “minimize[s] phosphorus and nitrogen transport from the field to surface waters.” 40 C.F.R. § 412.4(c)(2).

(3) *The Discharges Subject to NPDES Requirements*

The Rule provides, in § 122.23(e), that all land application discharges from a CAFO are subject to NPDES requirements, i.e., any discharge of manure, litter, or process wastewater that results from the land application of these materials by a CAFO is a discharge that is regulable and subject to NPDES permit requirements. 40 C.F.R. § 122.23(e). Where, however, CAFOs land-apply waste in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in that waste, any subsequent “precipitation-related” discharge is considered to be an “agricultural stormwater discharge” that is, under the Act, exempt from regulation. See *id.*; 33 U.S.C. § 1362(14).

(4) *Effluent Limitation Guidelines*

The Rule establishes effluent limitation guidelines (“ELGs”) that apply to land application discharges by Large CAFOs and to the “production areas”¹³ of Large CAFOs.¹⁴ Two general comments about these ELGs are in order. First, although the EPA usually

establishes quantitative or numerical ELGs, the EPA here promulgated “best management practices,” which are qualitative or non-numerical ELGs for Large CAFOs, but which, we note, are still technology-based because they are based on the technology standards prescribed by the Act. *See* 40 C.F.R. § 412.4; *see also* 40 C.F.R. § 122.44(k) (describing the circumstances in which the EPA may promulgate “best management practices” in the place of numerical ELGs). Second, because the EPA here decided to organize Large CAFOs into four subcategories (depending upon the types of animals present), the ELGs are also organized into four subcategories. *See* Preamble to the Final Rule at 7208. Additionally, we note that, with respect *497 to land application, best management practices include, most importantly, the requirement that Large CAFOs “develop and implement a nutrient management plan” that, *inter alia*, sets an application rate that minimizes the transport of phosphorus and nitrogen from the land application field to surface waters. 40 C.F.R. §§ 412.4(c)(1)-(2). The land application best management practices also provide for manure and soil sampling, inspection of land application equipment and various setback requirements. *See* 40 C.F.R. § 412.4(c)(3)-(5). With respect to the ELGs for production areas, best management practices include various requirements designed to minimize the possibility of overflows, such as mandatory inspections of relevant equipment and the installation of depth markers in surface and liquid impoundments (e.g., lagoons, ponds, and tanks). *See* 40 C.F.R. § 412.37; Preamble to the Final Rule at 7214–21.

DISCUSSION

Two sets of petitioners bring challenges to the CAFO Rule: the “Environmental Petitioners” (Waterkeeper Alliance, Inc., Sierra Club, Natural Resources Defense Council, Inc., and the American Littoral Society) and the “Farm Petitioners” (American Farm Bureau Federation, National Chicken Council, and the National Pork Producers Council).¹⁵ *Amici curiae*, who represent various environmental and public health interests, join the Environmental Petitioners in some of their challenges.

All the challenges we here consider—most of which are brought by the Environmental Petitioners—can be divided into three general categories: (1) challenges to the permitting scheme established by the CAFO Rule; (2) challenges to the types of discharges subject to regulation

under the CAFO Rule; and (3) challenges to the effluent limitation guidelines established by the CAFO Rule.¹⁶ We will address each category in turn.

To the extent we are asked to review whether some aspect of the CAFO Rule violates the Clean Water Act, our inquiry is governed by the standards set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). *See also Public Citizen, Inc. v. Mineta*, 340 F.3d 39, 53 (2d Cir.2003). If Congress has “directly spoken to the precise question at issue” and “the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.” *Chevron*, 467 U.S. at 842–43, 104 S.Ct. 2778 (footnote omitted). If, however, we determine that the statute is silent or ambiguous with respect to the specific question at issue, then we consider “whether the agency's answer is based on a permissible construction of the statute.” *Id.* at 843, 104 S.Ct. 2778.

*498 [1] [2] To the extent we are asked to review whether some aspect of the CAFO Rule violates the Administrative Procedure Act because it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” 5 U.S.C. § 706(2)(A), our inquiry is governed by the standard set forth in *Motor Vehicle Manufacturers' Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company*. *See* 463 U.S. 29, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983). *See also Public Citizen*, 340 F.3d at 53. To determine whether an agency has acted in an arbitrary and capricious fashion, we ask whether the agency has “examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” *State Farm*, 463 U.S. at 42, 103 S.Ct. 2856. Then, “[i]n reviewing that explanation, we must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.” *Id.* Normally, we must deem arbitrary and capricious an agency rule where “the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Id.* at 43, 103 S.Ct. 2856 (internal quotations and citations omitted).

With this background in mind, we turn now to the various challenges.

A. Challenges to the CAFO Rule Permitting Scheme

1. Failure to Regulate

The Environmental Petitioners broadly indict the CAFO Rule as countenancing the creation of an “impermissible self-regulatory permitting regime.” More precisely, the Environmental Petitioners argue that the CAFO Rule is unlawful because: (1) it empowers NPDES authorities to issue permits to Large CAFOs in the absence of any meaningful review of the nutrient management plans those CAFOs have developed; and (2) it fails to require that the terms of the nutrient management plans be included in the NPDES permits. We agree with the Environmental Petitioners on both counts.

a. Failure to Require Permitting Authority Review

[3] The Clean Water Act demands regulation in fact, not only in principle. Under the Act, permits authorizing the discharge of pollutants may issue only where such permits *ensure* that every discharge of pollutants will comply with all applicable effluent limitations and standards. [Section 1342\(a\)\(1\) of Title 33](#) provides, for example, that when the EPA is, itself, issuing NPDES permits, the EPA may issue a permit for the discharge of any pollutant or combination of pollutants “upon condition that such discharge will meet ... all applicable requirements [including the effluent limitations statutorily required by [33 U.S.C. § 1311](#)].” The Act further provides that the EPA “shall prescribe conditions for such permits *to assure compliance with* [all applicable requirements, including effluent limitations].” [33 U.S.C. § 1342\(a\)\(2\)](#) (emphasis added). Similarly, [33 U.S.C. § 1342\(b\)](#) allows states to distribute NPDES permits only where, *inter alia*, the state permitting programs “*apply, and insure compliance with*, any applicable [effluent limitations and standards].” [33 U.S.C. § 1342\(b\)](#) (emphasis *499 added).¹⁷

By failing to provide for permitting authority review of the nutrient management plans, the CAFO Rule plainly violates these statutory commandments and is otherwise arbitrary and capricious under the Administrative Procedure Act. The requirement to develop and implement a nutrient management plan is, after all, one of the “best management practices” that constitute the

effluent limitation guidelines for land application by Large CAFOs. *See* [40 C.F.R. § 412.4\(c\)\(1\)](#). But not just *any* nutrient management plan suffices under the Rule. On the contrary, the effluent limitation guidelines expressly require that Large CAFOs develop and implement a nutrient management plan that:

incorporates the requirements of paragraphs (c)(2) through (c)(5) of this section based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

Id. Accordingly, in order to comply with the effluent limitations for land application of manure, litter, and process wastewater, Large CAFOs must, *inter alia*, develop and implement nutrient management plans that, pursuant to paragraph(c)(2), include “application rates” that “minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the Director.” *See* [40 C.F.R. § 412.4\(c\)\(2\)](#).

As presently constituted, the CAFO Rule does nothing to *ensure* that each Large CAFO has, in fact, developed a nutrient management plan that satisfies the above requirements. The CAFO Rule does nothing to ensure, in other words, that each Large CAFO will comply with all applicable effluent limitations and standards. This is because, most glaringly, the CAFO Rule fails to require that permitting authorities review the nutrient management plans developed by Large CAFOs before issuing a permit that authorizes land application discharges.

A recent decision of the Ninth Circuit supports the conclusion we here reach. In *Environmental Defense Center, Inc. v. EPA* (“EDC”), the Ninth Circuit considered a challenge to a “Phase II” EPA rule for municipal storm sewer systems. *See* [344 F.3d 832 \(9th Cir.2003\)](#), *cert. denied*, [Texas Cities Coalition on Stormwater v. EPA](#), [541 U.S. 1085, 124 S.Ct. 2811, 159 L.Ed.2d 246 \(2004\)](#). Among other things, the Phase II

Rule allowed small municipal storm sewer systems to seek permission to discharge pollutants by submitting an individualized set of best management practices designed by each municipal storm sewer system (“stormwater management plans”), either in the form of an individual permit application or in the form of a notice of intent to comply with a general permit. See *EDC*, 344 F.3d at 842. So long as a notice of intent included a stormwater management plan, the EPA deemed a municipal storm sewer system to be in compliance with the relevant standards of the Clean Water Act, including the standard that municipal stormwater pollution be reduced to the “maximum extent practicable.” See *id.* at 855; 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 123.35. The Phase II Rule did not require NPDES authorities to review the stormwater management plans themselves.

*500 The Ninth Circuit held, however, that the failure to require permitting authority review of the stormwater management plans violated the Clean Water Act.¹⁸ While the Ninth Circuit was quick to laud “[i]nvolving regulated parties in the development of individual stormwater pollution control programs,” it emphasized that “programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable [i.e., the relevant statutory standard].” *EDC*, 344 F.3d at 856. The Phase II Rule, by contrast, failed to require that the relevant permitting authorities review the stormwater management plans to “ensure that the measures that any given operator of a [small municipal storm sewer system] has decided to undertake will *in fact* reduce discharges to the maximum extent practicable.” *Id.* at 855 (emphasis in original). Accordingly, the Phase II Rule provided no safeguard against a municipal storm sewer system’s “misunderstanding or misrepresenting its own stormwater situation and proposing a set of minimum measures for itself that would reduce discharges by far less than the maximum extent practicable.” *Id.*

Like the Phase II Rule, the CAFO Rule does not require that NPDES permitting authorities review the nutrient management plans to ensure that the nutrient management plans designed by the Large CAFOs will *in fact* reduce land application discharges in a way that “achieve[s] realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.”

40 C.F.R. § 412.4(c)(1). Like the Phase II Rule, the CAFO Rule does not adequately prevent Large CAFOs “from misunderstanding or misrepresenting” their specific situation and adopting improper or inappropriate nutrient management plans, with improper or inappropriate waste application rates.¹⁹

The EPA offers two principal arguments in defense of the permitting scheme, neither *501 of which we find to be persuasive. First, the EPA argues that the nutrient management plan does not, itself, constitute an effluent limitation guideline but is, instead, “simply a planning tool” to help CAFOs comply with the effluent limitations. Accordingly, EPA contends that it is not statutorily compelled to require permitting authority review of the plans. We reject this argument. For one thing, we believe that the terms of the nutrient management plans are *themselves* effluent limitations, for reasons we state in Section A.1.b, *infra*. By failing to require permitting authority review of nutrient management plans, the CAFO Rule thus allows permits to issue that do not assure compliance with all applicable effluent limitations. Even assuming, *arguendo*, that EPA is correct and the nutrient management plan is not, itself, an effluent limitation, EPA’s argument still fails on its own terms. For while EPA denies that the nutrient management plan is itself an effluent limitation, even the EPA concedes, as it must, that the requirement to develop and implement a nutrient management plan *is* an effluent limitation; this requirement is, after all, one of the “best management practices” required by the CAFO Rule. See 40 C.F.R. § 412.4(c)(1). The CAFO Rule—by failing to provide for permitting authority review—still does not *ensure* that each Large CAFO has, in fact, developed and implemented a nutrient management plan that satisfies the requirements of 40 C.F.R. § 412(c)(1).

Second, the EPA argues that there is no *need* for permitting authority review because the Rule provides Large CAFOs with little room for discretion—and thus little room for error—in setting their waste application rates. This is true, the EPA argues, because the Rule requires states to develop “technical standards” based on certain “field-specific assessment[s]” and further requires Large CAFOs to adopt application rates that comply with those technical standards. See 40 C.F.R. § 412.4(c)(2); 40 C.F.R. § 412.4(c)(1). However, while state technical standards will reduce discretion on the part of the Large CAFOs, they will not eliminate it. State technical

standards are based on *field*-specific assessments. But Large CAFOs ultimately set application rates based on *site*-specific assessments of the relevant field conditions, as the EPA concedes in the Preamble to the Rule. *See* Preamble to the Final Rule at 7209 (“Today’s rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.”) (emphasis added); *see also id.* at 7213 (“The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.”) (emphasis added).²⁰ *502 By not providing for permitting authority review of these application rates, the CAFO Rule fails to adequately prevent Large CAFOs from “misunderstanding or misrepresenting” the application rates they must adopt in order to comply with state technical standards. The CAFO Rule does not ensure that the Large CAFOs will, in fact, develop nutrient management plans—and waste application rates—that comply with all applicable effluent limitations and standards.

b. *Failure to Require that the Terms of the Nutrient Management Plans be Included in the NPDES Permits*

[4] The Clean Water Act unquestionably provides that all applicable effluent limitations must be included in each NPDES permit. *See* 33 U.S.C. §§ 1311(a), 1311(b), 1342(a); *see also Am. Paper Inst., Inc. v. EPA*, 996 F.2d 346, 349 (D.C.Cir.1993) (noting that the Clean Water Act “mandates that every permit contain [*inter alia*] effluent limitations that reflect the pollution reduction achievable by using technologically practicable controls”). What the parties here dispute is whether the terms of the nutrient management plans, themselves, constitute effluent limitations that must be included in the NPDES permits.

As we have already stated, rather than setting forth *numerical* effluent limitations for land application of manure, the CAFO Rule establishes *non-numerical* effluent limitations in the form of best management practices. *See* 40 C.F.R. § 412.4. Among these best management practices is the requirement that CAFOs “develop and implement a nutrient management plan” that, *inter alia*, sets application rates that minimize

phosphorus and nitrogen transport. *See* 40 C.F.R. § 412.4(c)(1). The EPA readily acknowledges that the requirement to *develop and implement* a nutrient management plan is a non-numerical effluent limitation, but argues that—under the wording of this requirement—the terms of the nutrient management plans themselves do not constitute the non-numerical effluent limitations. Accordingly, EPA argues that the terms of the nutrient management plans need not be included in the NPDES permits.

We believe that the EPA’s argument is foreclosed by the statutory definition of effluent limitation. The Clean Water Act defines effluent limitation to mean “any *restriction* established by a State or the Administrator on quantities, *rates*, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources ...” 33 U.S.C. § 1362(11) (emphasis added). There is no doubt that under the CAFO Rule, the only restrictions actually imposed on land application discharges are those restrictions imposed by the various terms of the nutrient management plan, including the waste application *rates* developed by the Large CAFOs pursuant to their nutrient management plans. Indeed, the requirement to develop a nutrient management plan constitutes a restriction on land application discharges only to the extent that the nutrient management plan actually imposes restrictions on land application discharges. To accept the EPA’s contrary argument—that *requiring* a nutrient management plan is itself a restriction on land application discharges—is to allow semantics to torture logic.

Because we believe that the terms of the nutrient management plans constitute effluent limitations, we hold that the CAFO Rule—by failing to require that the terms of the nutrient management plans be included in NPDES permits—violates the *503 Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.

2. *Lack of Public Participation*

[5] The Environmental Petitioners also argue, and we here find, that the permitting scheme established by the CAFO Rule violates the Clean Water Act’s public participation requirements and is otherwise arbitrary and capricious under the Administrative Procedure Act.

Congress clearly intended to guarantee the public a meaningful role in the implementation of the Clean Water Act. The Act unequivocally and broadly declares, for example, that “[p]ublic participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States.” 33 U.S.C. § 1251(e). Consistent with this demand, the Act further provides that there be an “opportunity for public hearing” before any NPDES permit issues, *see* 33 U.S.C. §§ 1342(a), 1342(b)(3); that a “copy of each permit application and each permit issued under this section [1342] shall be available to the public,” *see* 33 U.S.C. § 1342(j); and that “any citizen” may bring a civil suit for violations of the Act, *see* 33 U.S.C. § 1365(a).

The CAFO Rule deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment. Admittedly, the Preamble to the Rule indicates that the “EPA expects that the permitting authority will make this information available to the public upon request,” *see* Preamble to the Final Rule at 7233 (emphasis added); however, the Rule provides no assurance that EPA’s expectations will be satisfied. Not only does the CAFO Rule fail to require that the terms of the nutrient management plans be included in the NPDES permits, it also fails to provide the public with any other means of access to them. After all, the Rule provides only that a “copy of the CAFO’s site-specific nutrient management plan must be maintained on site and made available to the Director [of the state permitting authority] upon request.” 40 C.F.R. § 122.42(e)(2)(ii). The Rule does not similarly require that copies of the nutrient management plans be made available to the public by the CAFOs.

This scheme violates the Act’s public participation requirements in a number of respects. First and foremost, in light of our holding that the terms of the nutrient management plans constitute effluent limitations that should have been included in NPDES permits, the CAFO Rule deprives the public of its right to assist in the “development, revision, and enforcement of ... [an] effluent limitation.” 33 U.S.C. § 1251(e) (emphasis added). More specifically, the CAFO Rule prevents the public from calling for a hearing about—and then meaningfully

commenting on—NPDES permits before they issue. *See* 33 U.S.C. §§ 1342(a), 1342(b)(3). The CAFO Rule also impermissibly compromises the public’s ability to bring citizen-suits, a “proven enforcement tool” that “Congress intended [to be used...] to both spur and supplement government enforcement actions.” Clean Water Act Amendments of 1985, Senate Environment and Public Works Comm., S.Rep. No. 50, 99th Cong., 1st Sess. 28 (1985). Under the CAFO Rule, as written, citizens would be limited to enforcing the mere requirement to develop a nutrient management plan, but would be without means to enforce the terms of the nutrient management plans because they *504 lack access to those terms. This is unacceptable.

And even assuming, *arguendo*, that the nutrient management plans did not themselves constitute effluent limitations, we would still hold that the CAFO Rule violates the Act’s public participation requirements. Nutrient management plans are, even under the EPA’s own theory of the CAFO Rule, a critical indispensable feature of the “plan, or program established by the Administrator or any State” in order to regulate Large CAFO land application discharges. 33 U.S.C. § 1251(e). The EPA itself has stated in the Preamble to the Rule that “the only way to ensure that non-permitted point source discharges of manure, litter, or process wastewaters from CAFOs do not occur is to require ... [land application] in accordance with site specific nutrient management practices.” Preamble to the Final Rule at 7198. Since nutrient management plans embody all the relevant “site specific nutrient management practices,” it is clear that, even according to the EPA, nutrient management plans are a *sine qua non* of the “regulation, standard, plan, or program” it established to regulate land application discharges. 33 U.S.C. § 1251(e).

Given that the CAFO Rule forestalls—rather than “provid[es] for, encourag[es], and assist[s]”—public participation in the development and enforcement of nutrient management plans, and given that nutrient management plans are an important “regulation, standard, effluent limitation, plan or program” established by the EPA to regulate land application discharges, the CAFO Rule violates the plain dictates of 33 U.S.C. § 1251(e).

3. The Duty to Apply

[6] The Farm Petitioners also challenge the permitting scheme established by the CAFO Rule. They contend that the EPA has exceeded its statutory jurisdiction by requiring all CAFOs to either apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We agree and grant their petition in this regard.

The Clean Water Act authorizes the EPA to regulate, through the NPDES permitting system, only the discharge of pollutants. The Act generally provides, for example, that “Except as in compliance [with all applicable effluent limitations and permit restrictions,] the *discharge of any pollutant* by any person shall be unlawful.” 33 U.S.C. § 1311(a) (emphasis added). Consistent with this prohibition, the Act authorizes the EPA to promulgate effluent limitations for—and issue permits incorporating those effluent limitations for—the discharge of pollutants. Section 1311 of Title 33 provides that “[e]ffluent limitations ... shall be applied to all point sources of *discharge of pollutants*,” see 33 U.S.C. § 1311(e). Section 1342 of the same Title then gives NPDES authorities the power to issue permits authorizing the *discharge of any pollutant or combination of pollutants*. See 33 U.S.C. § 1342(a)(1) (“the Administrator may, after opportunity for public hearing, issue a permit for *the discharge of any pollutant, or combination of pollutants*”) (emphasis added); see also 33 U.S.C. § 1342(b) (authorizing states to administer permit programs for “discharges into navigable waters”). In other words, unless there is a “discharge of any pollutant,” there is no violation of the Act, and point sources are, accordingly, neither statutorily obligated to comply with EPA regulations for point source discharges, nor are they statutorily obligated to seek or obtain an NPDES permit.

Congress left little room for doubt about the meaning of the term “discharge of any pollutant.” The Act expressly defines the term to mean “(A) any addition of any *505 pollutant to navigable waters from any point source, [or] (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft.” 33 U.S.C. § 1362(12). Thus, in the absence of an actual addition of any pollutant to navigable waters from any point, there is no point source discharge, no statutory violation, no statutory obligation of point sources to comply with EPA regulations for point source discharges, and no statutory obligation of point sources to seek or obtain an NPDES permit in the first instance.

The CAFO Rule violates this statutory scheme. It imposes obligations on all CAFOs regardless of whether or not they have, in fact, added any pollutants to the navigable waters, i.e. discharged any pollutants. After all, the Rule demands that every CAFO owner or operator either apply for a permit—and comply with the effluent limitations contained in the permit—or affirmatively demonstrate that no permit is needed because there is “no potential to discharge.” See 40 C.F.R. §§ 122.23(d) and (f). In the EPA’s view, such demands are appropriate because all CAFOs have the *potential* to discharge pollutants. See Preamble to the Final Rule at 7202 (“The ‘duty to apply’ provision is based on the presumption that every CAFO has a potential to discharge.”). While we appreciate the policy considerations underlying the EPA’s approach in the CAFO Rule, however, we are without authority to permit it because it contravenes the regulatory scheme enacted by Congress; the Clean Water Act gives the EPA jurisdiction to regulate and control only *actual* discharges—not potential discharges, and certainly not point sources themselves. See *Natural Resources Defense Council v. EPA*, 859 F.2d 156, 170 (D.C.Cir.1988) (noting that “the [Act] does not empower the agency to regulate point sources themselves; rather, EPA’s jurisdiction under the operative statute is limited to regulating the discharge of pollutants”). To the extent that policy considerations do warrant changing the statutory scheme, “such considerations address themselves to Congress, not to the courts.” *MCI Telecommunications Corp. v. AT & T, Co.*, 512 U.S. 218, 234, 114 S.Ct. 2223, 129 L.Ed.2d 182 (1994) (citation omitted).

EPA’s other arguments are also unavailing. The EPA principally attempts to derive support for its “duty to apply” provision from the statutory definition of point source. EPA argues that point source is defined to mean not only “any discernible, confined and discrete conveyance” from which pollutants “are” discharged, but also “any discernible, confined and discrete conveyance” from which pollutants “*may be*” discharged. 33 U.S.C. § 1362(14). The EPA cannot, however, point to any provision of the statute that gives operational effect to the “may be” language in the manner in which the EPA seeks to do so here. The EPA points, for example, to 33 U.S.C. § 1311(e). Yet that section provides not that effluent limitations shall be applied to all point sources, end of story, but that effluent limitations shall be applied “to all point sources *of discharge of*

pollutants in accordance with the provisions of this chapter.” 33 U.S.C. § 1311(e) (emphasis added). Thus, while point sources are statutorily defined to include potential dischargers, effluent limitations can, pursuant to 33 U.S.C. § 1311(e), be applied only to “point sources of discharge of pollutants,” i.e. those point sources that are *actually* discharging.²¹ *Id.*

The EPA also argues that the “duty to apply” provision is consistent with the Act's goal of not just reducing, but eliminating *506 water pollution. It is true that the duty to apply provision is consistent with the broad goal of eliminating water pollution. However, the duty to apply flatly contravenes the statute's text, which more specifically defines—and circumscribes—the powers that Congress conferred upon the EPA in order to effectuate the Clean Water Act's goals. Principles of statutory construction forbid us from sanctioning EPA conduct that is plainly inconsistent with a statute's specific text. *See Caminetti v. United States*, 242 U.S. 470, 485, 37 S.Ct. 192, 61 L.Ed. 442 (1917) (“It is elementary that the meaning of a statute must, in the first instance, be sought in the language in which the act is framed, and if that is plain ... the sole function of the courts is to enforce it according to its terms.”).

For all these reasons, we believe that the Clean Water Act, on its face, prevents the EPA from imposing, upon CAFOs, the obligation to seek an NPDES permit or otherwise demonstrate that they have no potential to discharge. *See Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842–43, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984) (where Congress has “directly spoken to the precise question at issue” and “the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.”) (footnote omitted).²²

B. Challenges to the Types of Discharges Regulated

1. Regulatory Exemption for “Agricultural Stormwater” Discharges

As stated in the background section, *supra*, the CAFO Rule generally provides *507 that discharges from a land application area under the control of a CAFO are subject to NPDES requirements. *See* 40 C.F.R. § 122.23(e). However, the Rule, like the Clean Water Act

itself, carves out an exception where the discharge in question is “an agricultural storm water discharge,” *id.*—a category of discharges that the Act exempts from regulation via the statutory definition of “point source.” *See* 33 U.S.C. § 1362(14). More specifically, the Rule classifies, as agricultural stormwater, any “precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO” where the “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e).

[7] The Environmental Petitioners contend that this approach violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act because the Clean Water Act's definition of “point source” requires regulation of *all* CAFO discharges, notwithstanding the fact that agricultural stormwater discharges are otherwise deemed exempt from regulation. We disagree.

The Act defines the term “point source” as follows:

“[P]oint source” means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation*, or vessel or other floating craft, from which pollutants are or may be discharged. *This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.*

33 U.S.C. § 1362(14) (emphasis added). Contrary to the views of the Environmental Petitioners, we find that this provision is self-evidently ambiguous as to whether CAFO discharges can ever constitute agricultural stormwater. Here, the Act expressly defines the term point source to *include* “concentrated animal feeding operations;” the Act expressly defines “point source” to *exclude* “agricultural stormwater;” and the Act makes absolutely no attempt to reconcile the two. Congress has not addressed the precise issue the Environmental Petitioners put before us, and, as a result, the operative question we must consider becomes, pursuant to *Chevron*, whether the CAFO Rule's

exemption for “precipitation-related” land application discharges is grounded in a “permissible construction” of the Clean Water Act. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984).

The EPA reads the Act's definition of “point source” as generally authorizing the regulation of CAFO discharges, but exempting such discharges from regulation to the extent that they constitute agricultural stormwater. We think this is a reasonable construction in light of the legislative purpose of the agricultural stormwater exemption and given precedent from this circuit. With respect to legislative purpose, we believe it reasonable to conclude that when Congress added the agricultural stormwater exemption to the Clean Water Act, it was affirming the impropriety of imposing, on “any person,” liability for agriculture-related discharges triggered not by negligence or malfeasance, but by the weather—even when those discharges came from what would otherwise be point sources. There is no authoritative legislative history to the contrary. The Environmental Petitioners, for example, cite legislative history from 1972 in support of their position; however, the agricultural stormwater *508 exemption was not added to the Clean Water Act until a full fifteen years later, when Congress passed the Water Quality Act of 1987. *See* Water Quality Act of 1987, Pub.L. No. 100-4 § 503, 101 Stat. 7 (1987). It would be improper for us to rely on statements from 1972 in order to resolve an ambiguity that was not created until 1987. In our view, prior legislative history is a hazardous basis for inferring the intent of a subsequent Congress, in the same way that “subsequent legislative history is a hazardous basis for inferring the intent of an earlier Congress.” *Pension Benefit Guaranty Corp. v. LTV Corp.*, 496 U.S. 633, 650, 110 S.Ct. 2668, 110 L.Ed.2d 579 (1990) (emphasis added) (citation omitted). And, in any event, none of the legislative history from 1972 comes close to casting doubt on the construction we permit here.²³

Precedent from this circuit also supports the construction that the EPA advances and we here permit. In *Concerned Area Residents for the Environment v. Southview Farm*, this Court considered the agricultural stormwater exemption and its statutory relationship to point source discharges, specifically CAFO discharges. 34 F.3d 114 (2d Cir.1994). The essence of the Court's holding was not, as Environmental Petitioners contend, that discharges from an area under the control of a CAFO can never qualify

for the agricultural stormwater exemption. Rather, the Court held that a discharge from an area under the control of a CAFO can be considered either a CAFO discharge that is subject to regulation or an agricultural stormwater discharge that is not subject to regulation. Whether or not a discharge is regulable turned, in the Court's view, on the primary cause of the discharge. That is why the Court wrote that a discharge could be regulated, and liability imposed, where “the run-off was primarily caused by the over-saturation of the fields rather than the rain and that sufficient quantities of manure were present so that the run-off could not be classified as ‘stormwater.’” *Id.* at 121.

We believe that the CAFO Rule comports both with Congress' intent in enacting the agricultural stormwater exemption and with our holding in *Southview Farm*. So far as Congress' intent is concerned, while the Rule holds CAFOs liable for most land application discharges, it prevents CAFOs from being held liable for “precipitation-related discharge[s]” where “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e). In other words, like the Clean Water Act itself, the CAFO Rule seeks to remove liability for agriculture-related discharges *509 primarily caused by nature, while maintaining liability for other discharges. So far as our holding in *Southview Farm* is concerned, discharges from land areas under the control of a CAFO can and should generally be regulated, but where a CAFO has taken steps to ensure appropriate agricultural utilization of the nutrients in manure, litter, and process wastewater, it should not be held accountable for any discharge that is primarily the result of “precipitation.”

We also find unpersuasive the only other significant complaint the Environmental Petitioners lodge against the CAFO Rule's agricultural stormwater exemption—namely that it is unreasonable, and hence improper, for the EPA to construe the term “agricultural” as encompassing any stormwater discharge from a land area under the control of a CAFO. The Environmental Petitioners contend that CAFOs must be viewed as industrial, not agricultural. We disagree. Dictionaries from the period in which the agricultural stormwater exemption was adopted define “agriculture” or “agricultural” in a way that can permissibly be construed to encompass CAFOs. For example, Webster's New World Dictionary defined the term “agriculture”

to include, *inter alia*, “work of cultivating the soil, producing crops, and raising livestock.” WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH 26 (3rd College Ed.1988). The Oxford English Dictionary similarly defined agriculture to include, *inter alia*, “cultivating the soil,” “including the allied pursuits of gathering in the crops and rearing live stock.” I THE OXFORD ENGLISH DICTIONARY 267 (2d Ed.1989). Here, there is no question that CAFOs “rais[e]” or “rear” livestock and, because land-applied manure is used as fertilizer, “cultivat[e] the soil” as well. *Cf.* Preamble to the Final Rule at 7197 (“When manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it ... fulfills an important agricultural purpose, namely the fertilization of crops ...”). As a result, we cannot say that the EPA has impermissibly treated CAFOs as agricultural in character.

Additionally, we note again that the CAFO Rule classifies precipitation-related discharges as agricultural stormwater only where CAFOs have otherwise applied “manure, litter or process wastewater ... in accordance with site specific nutrient management practices that ensure appropriate *agricultural* utilization.” 40 C.F.R. § 122.23(e) (emphasis added). Thus, even the CAFO Rule's application of the agricultural stormwater exemption is expressly tethered to agricultural endeavors.²⁴

Accordingly, for all these reasons, we reject the Environmental Petitioners' challenge to the CAFO Rule's exemption for agricultural stormwater discharges because we believe that the exemption is premised on a permissible construction of the Act.

***510** 2. Regulation of “Uncollected” Discharges

[8] The Farm Petitioners contend that the CAFO Rule violates the Clean Water Act because it regulates “uncollected” discharges from land areas under the control of a CAFO; in effect, the Farm Petitioners claim that runoff from land application areas, unless “collected” or “channelized” at the land application area itself, does not constitute a point source discharge. We reject this claim because, in our view, regardless of whether or not runoff is collected at the land application area, itself, any discharge from a land area under the control of a CAFO is a point source discharge subject to regulation because it is a discharge from a *CAFO*.

To evaluate the Farm Petitioners' claim we turn, once again, to the statutory definition of point source. The term “point source” is defined to mean, in relevant part, “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation*, or vessel or other floating craft, *from which pollutants are or may be discharged.*” 33 U.S.C. § 1362(14) (emphasis added). Given that the Act expressly defines “point source” to include concentrated animal feeding operations, the Farm Petitioners can prevail on their challenge only if we find that the Act prohibits classifying a land application discharge as a discharge “*from*” a CAFO. We believe, however, that the Act not only permits, but demands, that land application discharges be construed as discharges “*from*” a CAFO to the extent that they are not otherwise agricultural stormwater.

As this Court previously held in *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York*, the term point source refers to “the proximate source from which the pollutant is directly introduced to [a] destination water body.” *See* 273 F.3d 481, 493 (2d Cir.2001).²⁵ Here, CAFOs are unquestionably “the proximate source” of any discharge of pollutants from land application areas under their control to the surface waters (again, except where those discharges are agricultural stormwater). But for the application of manure by the CAFO to the land, there could never be a discharge of pollutants from the land to the surface waters. Thus, any land application discharge that is not agricultural stormwater is, definitionally, a discharge “*from*” a CAFO that can be regulated as a point source discharge.

Contrary to the contentions of the Farm Petitioners, whether the land application run-off has been “collected” or “channelized” at the land application area is irrelevant to the determination regarding whether such run-off constitutes a CAFO discharge. To be sure, the Act does generally contemplate that discharges be “channelized” in order to fall within the EPA's regulatory jurisdiction; that is why the term “point source” is defined as “discrete, discernible, conveyances.” However, a CAFO is, itself, a “channel” under the Act—it is, of course, expressly included in the list of examples of the types of “point sources” the EPA may regulate. Thus, ***511** any discharge “*from*” a CAFO is already a point

source discharge. Requiring that manure, litter, or process wastewater be separately channelized at the land application site before any runoff could be considered a “point source discharge” would be, in effect, to impose a requirement not contemplated by the Act: that pollutants be channelized not once but twice before the EPA can regulate them.

Even assuming that the Act did not plainly require that land application discharges generally be regulated as point source discharges, we would find that the EPA has permissibly construed the statute in defining, as a “discharge from a CAFO,” the “discharge of manure, litter or process wastewater to waters of the United States from a CAFO as a result of the application of that manure, litter or process wastewater by the CAFO to land areas under its control.” 40 C.F.R. § 122.23(e). Land application areas are, after all, an integral and indeed indispensable part of CAFO operations. CAFOs depend on them to receive the volumes of manure their animals generate; as we noted in the background section above, “[s]everal estimates indicate that 90% of CAFO-generated waste is land applied.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). Given this fact and given that, under the Rule, only discharges from land application areas “under [the] control” of a CAFO are subject to regulation, see 40 C.F.R. § 122.23(e), the EPA could quite reasonably conclude that runoff from a land application area is runoff from a CAFO.

Thus, we reject the challenge to the CAFO Rule's regulation of land application discharges, including “uncollected” discharges.

C. Challenges to the CAFO Rule Effluent Limitations

The Environmental Petitioners bring a host of challenges to: (1) the CAFO Rule's technology-based effluent limitation guidelines; and (2) the CAFO Rule's failure to promulgate additional water quality based effluent limitations.

Again, we note that the specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general “effluent limitation guidelines” (“ELGs”), which are separately promulgated by the EPA. Cf. *EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d

578 (1976) (“An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger.”). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution; they are technology-based because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. See 33 U.S.C. § 1311. For existing facilities, the Act requires that ELGs be based on standards that include: (1) the best available technology economically achievable (“BAT”), see 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology (“BCT”), see 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable control technology currently available (“BPT”), see 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available *512 demonstrated control technology. See 33 U.S.C. § 1316.

The EPA here established non-numerical ELGs for the production areas of CAFOs, and did so on a sub-category by sub-category basis. Of these, two are relevant: the subcategory for dairy cows and cattle (other than veal calves), grouped together under Part 412, Subpart C of EPA's regulations (“Subpart C CAFOs”), see 40 C.F.R. § 412.30–37, and the subcategory for swine, poultry and veal calves, grouped under Part 412, Subpart D, (“Subpart D CAFOs”), see 40 C.F.R. § 412.40–47. The EPA, which was required to set BAT, BPT and BCT standards for the production areas of Subpart C and Subpart D CAFOs, here determined that the identical “technologies” satisfy these standards, and accordingly promulgated ELGs based on the same technologies. Generally speaking, these ELGs, whether based on BAT, BCT or BPT standards: (1) set forth a prohibition on discharges from the production area of a CAFO (except insofar as the discharges are caused by “precipitation”); (2) require best management practices for the production area, including the installation of depth markers in manure lagoons and storage tanks, daily inspections of water lines, and weekly inspections of animal waste storage structures and of equipment used for channeling stormwater or runoff; (3) require additional best management practices

for land application areas; and (4) provide an opportunity for alternative performance standards based upon “site-specific alternative technologies that achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants that would be discharged under the baseline.” See 40 CFR § 412.31(a)(2).

The Environmental Petitioners present several challenges to the technology-based ELGs promulgated by the EPA. Specifically, they challenge the BAT-based ELGs, the BCT-based ELGs for pathogens, and the new source performance standard adopted for Subpart D CAFOs. The Environmental Petitioners also challenge the EPA's decision not to impose additional water quality based effluent limitations. We address each set of challenges in turn.

1. Challenges to the BAT Standards

The Environmental Petitioners contend that the CAFO Rule's BAT-based ELGs—i.e. the ELGs reflecting the best available technology economically achievable (“BAT”), see 33 U.S.C. § 1311(b)(2)(A)—violate the Clean Water Act, or are otherwise arbitrary and capricious, in three respects. To wit, the Environmental Petitioners claim that: (a) in establishing the BAT standards, EPA failed to consider the best-performing technologies in the CAFO industry; (b) EPA improperly abandoned a more suitable option as BAT for beef and cattle CAFOs (Subpart C CAFOs); and (c) the EPA improperly rejected a more suitable option for swine, poultry and veal CAFOs (Subpart D CAFOs). We deny all these challenges.

a. Failure to Consider the Best Performing Technologies

[9] The Environmental Petitioners sweepingly contend that, in developing its BAT standards, the EPA failed to consider the single-best performing or optimally operating CAFO in each category or subcategory and then adopt BAT standards that reflect the respective performances of those CAFOs. We reject this summary challenge. The record reflects that EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that “Option 2”—described below—was the best candidate for BAT, because *513 all the other options considered either did not perform better than “Option 2,” were not adequately supported in science, or were not economically achievable.

The EPA engaged, here, in extensive data collection. The EPA conducted more than 116 site visits to CAFOs in over 20 states. It obtained information regarding the operational characteristics, waste management systems, and financial situations of CAFOs from several agencies within the USDA such as the National Agricultural Statistics Service, the Animal and Plant Health Inspection Service, and the Economic Research Service. EPA also attended conferences, obtained research from the land grant university system, met with several trade associations, and conducted extensive literature reviews. It received and considered approximately 11,000 public comments on the proposed CAFO Rule, see Preamble to the Final Rule at 7178, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). See *id.* at 7187–88. On the basis of this data collection, the EPA ultimately found that the BAT standards it adopted—which generally require improved operation and maintenance—would significantly reduce CAFO discharges as well or better than any other available, economically achievable technologies. And it generally justified this decision within the bounds of its discretion. See, e.g., *id.* at 7215 (“One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies.”).

To be sure, the CAFO Rule does not *explicitly* identify the single, existing best-performing CAFO in each category or subcategory of the Rule. However, it is obvious that the CAFO Rule *substantively* establishes standards that make “reference to the best performer in any industrial category”—and nothing in the Act or the legislative history indicates that any more was required of the EPA. See 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 170 (1973). We believe that in all BAT subcategories, the EPA has either adopted the technology employed by the best performers or declined to do so for permissible reasons. Indeed, the Environmental Petitioners cannot identify any specific performance standard that the EPA failed to consider or

rejected for impermissible reasons in adopting its BAT standards. Thus, the EPA has complied with its statutory duties in setting the BAT standards, and we consequently reject the Environmental Petitioners' challenge to them.

b. BAT for Beef and Cattle CAFOs ("Subpart C CAFOs")

The Environmental Petitioners also challenge the BAT standards on the narrower ground that the EPA improperly abandoned a more suitable option as BAT for beef and cattle (Subpart C) CAFOs. Specifically, the Environmental Petitioners contend that EPA should have selected what EPA had called "Option 3," rather than "Option 2" as BAT for Subpart C CAFOs.

By way of brief background, after reviewing an array of various pollution control technologies and best management practices, the EPA—as we previously stated *514 —narrowed the list of potential BAT candidates to seven options. Those seven options can be generally summarized as follows:

Option 1 would require controls on land application of manure, based on the ability of the soil to assimilate the nitrogen content of the manure, plus inspection and recordkeeping requirements for the production area;

Option 2 would require the same controls as Option 1, but would restrict the rate of manure application instead to a (generally lower) phosphorus-based application rate where necessary, depending on site-specific soil conditions;

Option 3 would require the same controls as Option 2, but would also require ground water monitoring and discharge controls, unless the CAFO could show that the groundwater beneath manure storage areas or stockpiles do not have a direct hydrologic connection to surface waters;

Option 4 would require the same controls as Option 3, but would also require sampling of surface waters adjacent to the production area and/or land under control of the CAFO to which manure is applied;

Option 5 would require—at least for Subpart D CAFOs—the same controls as Option 2, but would also establish a zero discharge requirement that does not allow overflows from the production area under any circumstances;

Option 6 would require the same controls as Option 2, but would also require that swine and dairy operations install and implement anaerobic digestion and gas recovery to treat manure; and

Option 7 would require the same controls as Option 2, but would also prohibit manure application to frozen, snow-covered, or saturated ground.

See EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 10–14 to 10–21 (Jan.2001).

[10] The EPA initially proposed adopting Option 3 as BAT for Subpart C CAFOs, see Proposed Rule at 3061–62, but ultimately adopted Option 2. See Preamble to the Final Rule at 7215–16. That is to say, the EPA initially proposed that various groundwater-related requirements be uniformly imposed on CAFOs, but ultimately decided that groundwater-related requirements be implemented, as necessary, on a case-by-case basis. See *id.*; Proposed Rule at 3062.²⁶ The Environmental Petitioners claim that the rejection of Option 3's groundwater requirements is unsupported in the record. The EPA argues, in opposition, that it reasonably determined that Option 2 is better technology *515 than Option 3, and that Option 3 would impose prohibitive economic costs on the CAFO industry. We believe that the record adequately supports EPA's determinations and accordingly defer to the Agency's selection of Option 2.

The EPA principally claims that Option 2 is better technology than Option 3 because groundwater-related requirements are highly dependent on site-specific variables and that, accordingly, such requirements are more effectively evaluated and implemented on a case-by-case basis, rather than imposed uniformly. The record adequately supports this claim. Studies do show that variability in topography, climate, distance to surface water, and geologic factors influence whether and how pollutant discharges at a particular site enter surface water via groundwater. See EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–12 (Jan.2001). For example, a study by Clapp and Hornberger demonstrates that variability in soil types significantly affects the rates at which water flows through them; indeed, Clapp and Hornberger "reported that water flowed through sand about 100 times faster than through clayey [sic] soils and about 10 times faster than through silty soils." *Id.* Given that there is sufficient record support for EPA's

determination that groundwater-related requirements are better imposed on a case-by-case basis, and given that Option 2 requires CAFOs to consider whether such requirements are needed, *see* Proposed Rule at 3062, we find that EPA has adequately justified its finding that Option 2 constitutes better technology than Option 3. *See Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 566 (D.C.Cir.2002) (upholding the EPA's determination to regulate "color discharges" from pulp and paper mill process on a case-by-case basis where such discharges were dependent on site-specific conditions).

The record also supports the EPA's decision to reject Option 3 as economically prohibitive and not likely to result in any significant reduction in groundwater pollution. *See Am. Petroleum Inst. v. EPA*, 787 F.2d 965, 972 (5th Cir.1986) ("EPA would disserve its mandate were it to tilt at windmills by imposing BAT limitations which removed de minimis amounts of polluting agents from our nation's waters, while imposing possibly disabling costs upon the regulated industry."). EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close under Option 3, were that Option, rather than Option 2, adopted. This amounted to a potential facility closure rate under Option 3 of 29% for heifer CAFOs, 19% for beef, and 12% for the subcategory as a whole. *See* EPA, FINAL RULE ECONOMIC ANALYSIS 3–22 (Dec.2002). At the same time, the EPA found that while it was difficult to quantify on an industry-wide basis the pollutant reduction that would be associated with nationally-applicable ELGs for groundwater controls, its pollution reduction models showed a difference of less than 1% between the nitrogen load reduction achieved under Option 3 as opposed to Option 2. *See* EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–15 (Jan.2001).

In light of all the above, we deny the Environmental Petitioners' challenge to the selection of Option 2 as BAT for Subpart C CAFOs.

c. BAT for Swine, Poultry and Veal CAFOs ("Subpart D CAFOs")

[11] Although the EPA initially proposed Option 5 as BAT for Subpart D CAFOs, *see* Proposed Rule at 3063–64, the EPA ultimately determined that the costs of Option 5 would not be economically achievable and, accordingly, adopted Option *516 2. *See* Preamble to the Final Rule

at 7218–19. The Environmental Petitioners here challenge the EPA's rejection of Option 5 on the grounds that: (1) the EPA gave undue consideration to cost; (2) the EPA's economic modeling is flawed; and (3) even assuming the reasonableness of the EPA's economic models, the Agency has, in other contexts, deemed "economically achievable" technologies that produced the same or worse economic costs. We reject all of these challenges and uphold the EPA's selection of Option 2 as BAT for Subpart D CAFOs.

As a preliminary matter, we note that Environmental Petitioners are correct that cost is only one of the factors that EPA is supposed to consider in establishing BAT standards. *See* 33 U.S.C. § 1314(b)(2)(B) (specifying that the EPA should consider "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"). However, the Clean Water Act "does not state what weight should be accorded to the relevant factors; rather, the Act gives EPA the discretion to make those determinations." *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 802 (6th Cir.1995). And as this Court previously indicated in *Riverkeeper, Inc. v. EPA*, the Administrator is obligated to "inquire into the initial and annual costs of applying the technology and make an affirmative determination that those costs can be reasonably borne by the industry." 358 F.3d 174, 195 (2d Cir.2004). Thus, if the EPA determines, with adequate support in the record, that a given set of costs cannot reasonably be borne by a given industry, courts must defer to that determination.

We believe that the EPA has here determined, with adequate support in the record, that Subpart D CAFOs cannot reasonably bear the costs associated with Option 5, because the EPA—after conducting extensive economic analysis, involving numerous economic tests and modeling—determined that Option 5 would render 17% of swine CAFOs and 11% of Subpart D CAFOs, on the whole, vulnerable to closure. *See* EPA, FINAL RULE ECONOMIC ANALYSIS at 3–19 to 3–22 (Dec.2002).²⁷

[12] Environmental Petitioners challenge the probity of the EPA's economic modeling, because, in their view,

the EPA should have assumed that CAFOs could offset their compliance costs by obtaining state and federal funding (“cost-share assistance”) and by passing the costs on to consumers (“cost passthrough”). In evaluating this challenge, we wish to make clear, at the outset, that the EPA's determinations about costs, as well as the methodology that the EPA employs in making such determinations, are entitled to deference.²⁸ “While EPA must take seriously its statutory duty to consider cost, courts of review should be mindful of the many *517 problems inherent in an undertaking of this nature and uphold a reasonable effort made by the Agency.” *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 563 (D.C.Cir.2002) (quoting *FMC Corp. v. Train*, 539 F.2d 973, 979 (4th Cir.1976)). A reviewing court can neither “second-guess EPA's analysis nor ‘undertake [its] own economic study’; rather, the court must ‘uphold the regulations if EPA has established in the record a reasonable basis for its decision.’ ” *Id.* at 565 (citation omitted); see also *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 250 (5th Cir.1989) (“a ‘court's inquiry will be limited to whether the Agency considered the cost of technology, along with the other statutory factors, and whether its conclusion is reasonable’ ” (citation omitted)).

We believe that the EPA has reasonably justified its decision not to consider either cost-share assistance or cost passthrough in promulgating the final CAFO Rule. First, with respect to cost-share assistance, the EPA determined, within the bounds of its discretion, that there were too many uncertainties regarding the extent to which any such assistance would mitigate compliance costs and that, accordingly, it would be inappropriate to consider cost-share assistance as a reliable offset to compliance costs. In its proposed economic analysis, EPA determined, for example, that although the USDA's Environmental Quality Incentives Program (“EQIP”) could theoretically ease the economic strain that Option 5 might impose, the EQIP program should not be relied upon because it might not cover all new applications from CAFOs, might limit the eligibility of CAFOs through various requirements, and might delay distributing funds to CAFOs given various waiting lists and geographic priorities. See EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–55 to 56 (Jan.2001). And while certain legislation passed by Congress in 2002 eliminated some restrictions on EQIP participation and substantially increased funding for EQIP, EPA still believed, at the time it conducted its final economic analysis, that the benefits of the EQIP program

were still too speculative to count on because it remained unclear what the actual funding levels would be, what limits might be placed on the types of waste management practices covered, and what share of dollars would be allocated to confinement facilities—as opposed to other agricultural operations—and to larger-sized operations. See EPA, FINAL RULE ECONOMIC ANALYSIS 2–66 to 2–68 (Dec.2002). We cannot say that the EPA unreasonably determined that federal allocations were too uncertain to rely upon.

Second, with respect to cost passthrough, we believe that EPA determined, within the bounds of its discretion, that the possibility of passing costs on to consumers was also too uncertain to rely upon. The EPA explained in its proposed rule economic analysis that farmers are at the bottom of a long food marketing chain, subject to imperfect market conditions characterized by “local oligopsony conditions, or ‘few buyers.’ ” See EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–60 (Jan.2001), citing Rogers and Sexton, *Assessing the Importance of Oligopsony Power in Agricultural Markets*, 76 AMER. J. AGR. ECON. 1143–50, Dec. 1994. Given the limited bargaining power of those who raise and confine animals, see *id.* at 2–25 to 2–26, the EPA thus concluded that “[i]ndividual farmers generally have a limited ability to pass on increased costs associated with regulations” and that, as a result, it would be a mistake to rely on cost passthrough. See *id.* at 4–60. We cannot say that the EPA acted unreasonably in *518 making these determinations.²⁹

Having rejected the challenges to the soundness of the EPA's economic models, we move finally to Environmental Petitioners' claim that, even assuming the reasonableness of the EPA's economic modeling, the results do not support a finding that Option 5 was economically unachievable because the Agency has, in other contexts, deemed “economically achievable” technologies that produced the same or worse economic costs. We reject this claim as well. The EPA here estimated that Option 5 would expose up to 11% of Subpart D CAFOs to financial stress sufficient to create a risk of closure. See EPA, FINAL RULE ECONOMIC ANALYSIS at 3–22 (Dec.2002). While the EPA—and courts—have treated more substantial risks of closure as nonetheless supporting a finding of economic achievability, see, e.g., *Chem. Mfrs. Assoc. v. EPA*, 870 F.2d at 202 (upholding BAT where 14% of facilities

would be forced to close), it is also true that the EPA—and courts—have treated less substantial risks of closure as supporting a finding of economic unachievability. For example, the D.C. Circuit has upheld an EPA determination that a projected closure rate of less than 7% could support a finding of economic unachievability. *See Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 563 (D.C.Cir.2002). In the end, economic achievability is a determination the EPA must make on an industry-by-industry basis because each industry has its own special attributes and requires an individual assessment of appropriate financial criteria. And we must defer to such determinations unless they are unreasonable. *See id.*, 286 F.3d at 565.

Thus, we reject the Environmental Petitioners' claim that the EPA unlawfully selected Option 2, rather than Option 5, as BAT for Subpart D CAFOs.

2. Challenge to the BCT Standard for Pathogens

[13] The Environmental Petitioners next claim that the EPA's failure to adopt any requirements specifically designed to reduce pathogen discharges violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.³⁰ We agree with the Environmental Petitioners in part.

The EPA does not dispute that it is required, under the Clean Water Act, to promulgate BCT-based effluent guidelines for at least one pathogen, namely fecal coliform. *See* 33 U.S.C. § 1314(a)(4) (listing fecal coliform as a conventional pollutant subject to regulation); 33 U.S.C. § 1311(b)(2)(E) (requiring the promulgation of BCT standards for pollutants). That is to say, the EPA does not dispute that it is required to promulgate a technology standard for achieving pathogen reductions that reflects the *best* conventional *519 pollutant control technology. The EPA also does not here dispute that there is a more than *de minimis* presence of pathogens in the animal waste regulated by the CAFO Rule. In the Preamble to the CAFO Rule, for example, the EPA expressly acknowledges “the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment.” Preamble to the Final Rule at 7217. *See also* EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL

FEEDING OPERATIONS A–8 (Dec.2002) (“EPA recognizes the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment”); Proposed Rule at 2977 (noting that livestock manure “contains countless microorganisms, including bacteria, viruses, protozoa, and parasites,” that “[m]ultiple species of pathogens may be transmitted directly from a host animal's manure to surface water” and that “[o]ver 150 pathogens found in livestock manure are associated with risks to humans”).

The EPA argues that, notwithstanding the above, its failure to impose any BCT-based ELGs specifically designed to achieve pathogen reductions is justified. Principally, the EPA argues that: (1) the pathogen controls it did evaluate, most of which appear to relate to the use or potential use of anaerobic digestion technology, would not necessarily lead to significant pathogen reduction, but would impose significant costs, *see* Preamble to the Final Rule at 7217; and (2) the ELGs otherwise adopted by the CAFO Rule may “incidentally” achieve some reductions of the pathogens in CAFO discharges. *See* Brief of Respondents United States Environmental Protection Agency, et al. at 196; *see also* Preamble to the Final Rule at 7217 (“Although the ELG requirements in this rule are not specifically designed to reduce the pathogens in animal wastes, today's rule may achieve some reductions of pathogens in CAFO discharges ...”).

In our view, however, the CAFO Rule violates the Clean Water Act because the EPA has not made an affirmative finding that the BCT-based ELGs adopted in the CAFO Rule do *in fact* represent the best conventional pollutant control technology for reducing pathogens. The EPA may well determine, within the bounds of its discretion, that the ELGs otherwise adopted by the CAFO do in fact represent the best conventional pollutant control technology for reducing pathogens. It may well be the case, to put it slightly differently, that the EPA determines, after considering all the relevant factors, that the ELGs otherwise adopted by the CAFO Rule will directly—not just incidentally—reduce pathogens and do so better than any other pollutant control technology. But we cannot, consistent with the Act, allow the EPA to avoid imposing any other pollutant control technology without an express finding in this regard. The Act requires that the EPA select the best pollutant control technology for reducing pathogens, and we must enforce that requirement.³¹

Accordingly, we grant the petition to the extent that Environmental Petitioners challenge the EPA's failure to impose ELGs specifically designed to reduce pathogens in CAFO discharges as a violation of the Clean Water Act.

***520** 3. *Challenge to the New Source Performance*

Standard for Swine, Poultry, and Veal

The Environmental Petitioners claim that the EPA's "new source performance standard" for the production areas of swine, poultry, and veal CAFOs is arbitrary and capricious and that—because the EPA introduced a change to the standard that was not subject to public comment—the new source performance standard for the production areas of swine, poultry, and veal CAFOs violates the Clean Water Act's public participation requirements. We agree with them in part.

The Clean Water Act requires the EPA to promulgate "New Source Performance Standards" ("NSPS") for new, as opposed to already existing, sources of pollution. *See* 33 U.S.C. § 1316. The Act provides that these standards must "reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants." 33 U.S.C. § 1316(a)(1). The Act further requires that the EPA "take into consideration the cost of achieving such effluent reduction, and any non-water quality, environmental impact and energy requirements." 33 U.S.C. § 1316(b)(1) (B). And we note that the EPA is given "considerable discretion to weigh and balance the various factors required by statute to set [NSPS]." *Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 195 (2d Cir.2004) (citation omitted).

The EPA initially proposed that the NSPS for the production areas of swine, poultry and veal CAFOs include various groundwater-related requirements, *see* Proposed Rule at 3144, and also proposed that the NSPS for the production areas of swine, poultry, and veal CAFOs include a total prohibition on production area discharges. *See id.* ("There must be no discharge of process wastewater pollutants into U.S. waters, including any pollutants discharged to ground water which have a direct hydrological connection to surface waters."). In the Final Rule, however, the EPA changed course in several respects: (1) The NSPS did not include the groundwater-related requirements; (2) the NSPS still

barred all production area discharges, but provided that a CAFO could comply with this requirement by designing, constructing, operating and maintaining production areas that could "contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event;" and (3) the NSPS empowered permitting authorities to establish alternative performance standards that allow production area discharges, so long as such discharges were accompanied by "an equivalent or greater reduction in the quantity of pollutants released to other media" by the CAFO. *See* 40 C.F.R. § 412.46. The Environmental Petitioners here challenge all three aspects of the final NSPS.

We reject the challenge to the extent that it concerns the EPA's failure to include groundwater-related requirements as part of the NSPS. The EPA's decision not to include such requirements as part of the NSPS was predicated on the same findings underlying its decision not to include groundwater-related requirements as part of the BAT for "Subpart C CAFOs." And as we have already explained, we believe that these findings are supported in the record. *See* discussion *supra*.

[14] However, we agree with the Environmental Petitioners that there is not adequate support in the record for either: (1) *521 the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement by designing, operating, and maintaining a facility to contain the runoff from a 100-year, 24-hour rainfall event; or (2) the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement through alternative performance standards.

With respect to the former, the EPA claims that the "100-year, 24-hour rainfall event" design standard is functionally equivalent to or a logical outgrowth of a total prohibition standard. The EPA has not, however, adequately substantiated this claim. For example, the EPA never modeled the potential overflows and pollutant loads from a system with a 100-year, 24-hour storm event design capacity; so far as we can tell, the EPA modeled only the potential overflows and pollutant loads from a system with a 25-year, 24-hour storm event. And while certain studies may have shown that the production area BMPs adopted by the CAFO Rule would have substantially prevented the production area discharges documented in the record, we think it obvious that

substantially preventing discharges is not the same as prohibiting them outright.

With respect to the latter, the EPA has not justified in any way—let alone with adequate support in the record—its decision to allow a CAFO to comply with the total prohibition standard through an alternative standard permitting production area discharges so long as the CAFO's aggregate pollution is equivalent to or lower than what it would have been without the production area discharges.

[15] Additionally, because the EPA did not indicate, until the adoption of the final rule, that it was considering either the 100-year, 24-hour rainfall event option or the possibility of alternative performance standards, we find that the EPA's decision to adopt such provisions as part of the NSPS for swine, poultry, and veal violates the Clean Water Act's public participation requirements. See 33 U.S.C. § 1251(e) (“Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States”).

4. Challenge to the EPA's Failure to Impose Water Quality Based Effluent Limitations

[16] We now consider the final challenge brought in this consolidated petition, namely, whether the CAFO Rule violates the Clean Water Act and is otherwise arbitrary and capricious under the Administrative Procedure Act because the Rule fails to promulgate water quality based effluent limitations (“WQBELs”) and also bars states from doing so. We agree with the Environmental Petitioners that it does, at least in part.

As stated above, the Clean Water Act not only requires that the EPA promulgate technology-based effluent limitations, but also provides that additional WQBELs “shall be established”—either by the EPA, see 33 U.S.C. § 1312(a), or by the states, see 33 U.S.C. § 1314(1)—where “discharges of pollutants from a point source or group of point sources ... would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and

allow recreational activities in and on the water.” 33 U.S.C. § 1312(a). The Act authorizes the imposition of such WQBELs because “[t]he limitations necessary *522 to achieve a given level of water quality in one reach of a waterway may require more control of effluents than that attainable through application of the best available technology.” 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93-1, p. 1464 (1973).

The CAFO Rule does not, here, promulgate any WQBELs. This much is clear. And this does not present a problem to the extent that the Rule fails to promulgate—and bars the states from promulgating—WQBELs for any “agricultural stormwater discharge,” as that term is defined in 40 C.F.R. § 122.23(e).³² Agricultural stormwater discharges are, after all, statutorily exempt from any effluent limitations, including WQBELs, because they are not point source discharges. See 33 U.S.C. § 1362(14).

What is fully unclear is: (1) why the CAFO Rule exempts discharges other than agricultural stormwater discharges from WQBELs, and (2) whether the CAFO Rule bars the states from promulgating WQBELs for discharges other than agricultural stormwater discharges, and, if so, why. With regard to the former, the EPA has here indicated its intention not to promulgate any WQBELs whatsoever; the Preamble to the Final Rule states, after all, that the “EPA does not expect that water quality-based effluent limitations will be established for CAFO discharges resulting from the land application of manure, litter or process wastewater.” Preamble to the Final Rule at 7207. The EPA has, however, only justified its determination not to impose WQBELs, only insofar as agricultural stormwater discharges are concerned. See *id.* The EPA has not attempted, in any way, to explain its failure to promulgate WQBELs for CAFO discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). The EPA sidesteps the issue completely on appeal, and the Preamble to the CAFO Rule similarly fails to explain, let alone justify, its decision. Since there is otherwise evidence in the record suggesting that the EPA's technology-based effluent limitation guidelines may not, on their own, “assure *523 protection of public health,” see, e.g., Memorandum from Laurel J. Staley, Chief, Treatment and Destruction

Branch, Land Remediation & Pollution Control Division, EPA, Re: Assessment of the Necessity for Controlling Potentially Infectious Microorganisms in Animal Wastes (Jan. 16, 2002), we find that the EPA's failure to justify the lack of WQBELs for CAFO discharges other than agricultural stormwater discharges violates 33 U.S.C. § 1312(a) and is arbitrary and capricious in violation of the Administrative Procedure Act.³³ Accordingly, on remand, we direct the EPA to explain whether or not, and why, WQBELs are needed to assure that CAFO discharges will not “interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water.” 33 U.S.C. § 1312(a).

Additionally, we find that the Preamble to the Rule is ambiguous about whether states may promulgate WQBELs for discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). On the one hand, the Preamble does, at one time, seem to suggest that states may promulgate WQBELs; it provides that “[a]lthough, as noted above, manure and process wastewater discharges from the land application area are not directly subject to water quality-based effluent limits, EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practice.” Preamble to the Final Rule at 7198. On the other hand, the Preamble elsewhere says that where a CAFO has implemented site-specific practices designed to ensure appropriate agricultural utilization of nutrients, it is free from *any* further regulation. To wit, the Preamble states:

In explaining how the scope of CAFO point source discharges is limited by the agricultural storm water exemption, EPA intends that this limitation will provide a “floor” for CAFOs that will ensure that, where a CAFO is land applying manure, litter or process wastewater in accordance with site specific practices designed to ensure appropriate agricultural utilization of nutrients, *no further effluent*

limitations will be authorized, for example, to ensure compliance with water quality standards.

Id. (emphasis added). Given the ambiguity in the Preamble, and given the fact that at least one state has expressed concern that the Rule prevents the imposition of any state WQBELs, *see* Wisconsin Dep't of Natural Res. Comments on U.S. EPA's Proposed Rule Revisions for Concentrated Animal Feeding Operations at 1 (July 27, 2001), we believe it necessary for the EPA to explain more clearly, on remand, whether in fact states may promulgate WQBELs for discharges other than agricultural stormwater discharges as the term is defined in 40 C.F.R. § 122.23(e) and, if not, why.

Accordingly, we grant the Environmental Petitioners' challenge to the extent that they claim that the CAFO Rule is arbitrary and capricious under the Administrative Procedure Act because the EPA has *524 not sufficiently justified its decision not to promulgate WQBELs for discharges other than agricultural stormwater discharges, as that term is defined in 40 C.F.R. § 122.23(e). Additionally, we grant the Environmental Petitioners' petition to the extent that it seeks clarification of whether the CAFO Rule bars the states from promulgating WQBELs.³⁴

CONCLUSION

For the foregoing reasons, the petitions are granted in part and denied in part. We hereby vacate those provisions of the CAFO Rule that: (1) allow permitting authorities to issue permits without reviewing the terms of the nutrient management plans; (2) allow permitting authorities to issue permits that do not include the terms of the nutrient management plans and that do not provide for adequate public participation; and (3) require CAFOs to apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We also remand other aspects of the CAFO Rule to the EPA for further clarification and analysis. Specifically, we direct the EPA to: (1) definitively select a BCT standard for pathogen reduction; and (2) clarify—via a process that adequately involves the public—the statutory and evidentiary basis for allowing Subpart D CAFO's to comply with the new source performance standard by either: (a) designing, constructing, operating and maintaining production areas that could contain

all manure, litter and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event; or (b) complying with alternative performance standards that allow production area discharges, so long as such discharges are accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media. Additionally, we direct the EPA to clarify the statutory and evidentiary basis for failing to promulgate water quality based effluent limitations for discharges other than agricultural

stormwater discharges, as that term is defined in [40 C.F.R. § 122.23\(e\)](#), and also direct the EPA to clarify whether states may develop water quality based effluent limitations on their own. We uphold the CAFO Rule in all other respects.

All Citations

399 F.3d 486, 59 ERC 2089, 35 Env'tl. L. Rep. 20,049

Footnotes

- 1 The term “discharge of a pollutant” is defined to mean, *inter alia*, “any addition of any pollutant to navigable waters from any point source.” [33 U.S.C. § 1362\(12\)\(A\)](#).
- 2 The term “person” is defined to mean “an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body.” [33 U.S.C. § 1362\(5\)](#).
- 3 The term “point source” is defined to mean “any discernible, confined and discrete conveyance ... from which pollutants are or may be discharged.” [33 U.S.C. § 1362\(14\)](#). Notably, the Act includes “concentrated animal feeding operation” as an example of a point source. *Id.*
- 4 Under [40 C.F.R. 122.23\(b\)\(1\)](#), an animal feeding operation (“AFO”) is defined to mean:
 - a lot or facility (other than an aquatic animal production facility) where the following conditions are met:
 - (i) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and
 - (ii) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.
- 5 The CAFO Rule defines a concentrated animal feeding operation as “an AFO [animal feeding operation] that is defined as a Large CAFO or as a Medium CAFO by the terms of this paragraph, or that is designated as a CAFO in accordance with paragraph (c) of this section.” [40 C.F.R. § 122.23\(b\)\(2\)](#). Paragraph (c) provides that an appropriate authority (either a state director, the EPA administrator or both) may designate an AFO as a CAFO upon a determination that the AFO is “a significant contributor of pollutants to waters of the United States.” [40 C.F.R. § 122.23\(c\)](#).
- 6 According to [40 C.F.R. § 122.23\(b\)\(6\)](#), the term Medium CAFO includes:
 - ... any AFO with the type and number of animals that fall within any of the ranges listed in paragraph (b)(6)(i) of this section and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:
 - (i) The type and number of animals that it stables or confines falls within any of the following ranges:
 - (A) 200 to 699 mature dairy cows, whether milked or dry;
 - (B) 300 to 999 veal calves;
 - (C) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
 - (D) 750 to 2,499 swine each weighing 55 pounds or more;
 - (E) 3,000 to 9,999 swine each weighing less than 55 pounds;
 - (F) 150 to 499 horses;
 - (G) 3,000 to 9,999 sheep or lambs;
 - (H) 16,500 to 54,999 turkeys;
 - (I) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;
 - (J) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
 - (K) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;
 - (L) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or
 - (M) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and
 - (ii) Either one of the following conditions are met:
 - (A) Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or

(B) Pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

7 However, the animal feeding operation raising the chickens must use something “other than a liquid manure handling system.” See 40 C.F.R. 122.23(b)(6)(J).

8 40 C.F.R. § 122.23(b)(3) classifies an animal feeding operation as a Large CAFO if it:

... stables or confines as many as or more than the number of animals specified in any of the following categories:

(i) 700 mature dairy cows, whether milked or dry;

(ii) 1,000 veal calves;

(iii) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.

(iv) 2,500 swine each weighing 55 pounds or more;

(v) 10,000 swine each weighing less than 55 pounds;

(vi) 500 horses;

(vii) 10,000 sheep or lambs;

(viii) 55,000 turkeys;

(ix) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;

(x) 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system

(xi) 82,000 laying hens, if the AFO uses other than a liquid manure handling system;

(xii) 30,000 ducks (if the AFO uses other than a liquid manure handling system); or

(xiii) 5,000 ducks (if the AFO uses a liquid manure handling system).

9 See, e.g., EPA, DEVELOPMENT DOCUMENT FOR THE FINAL REVISIONS TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REGULATION AND THE EFFLUENT GUIDELINES FOR THE CONCENTRATED ANIMAL FEEDING OPERATIONS , 4–35 (Dec.2002) (noting that “[b]y 1997, the value of poultry production exceeded \$21.6 billion, and much of the poultry output was generated by corporate producers on large facilities producing more than 100,000 birds.” (citations omitted)).

10 The USDA estimates that operations that confine livestock and poultry generate about 500 million tons of animal manure each year—over three times more raw waste than humans generate in the United States, according to the EPA. Preamble to the Final Rule at 7180.

11 “Several estimates indicate that 90% of CAFO-generated waste is land applied.” EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002).

12 That suit, brought by the NRDC and Public Citizen, was resolved by a consent decree in which the EPA agreed to propose new effluent limitation guidelines for the swine, poultry, beef and dairy subcategories of CAFOs. See Consent Decree, as amended, *NRDC v. Reilly, modified sub. nom., NRDC v. Whitman*, No. 89–2980 (D.D.C.1/31/1992).

13 40 C.F.R. § 122.23(b)(8) defines production area as:

that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities [dead animals].

14 The ELGs promulgated by the CAFO Rule apply only to *Large* CAFOs. See Preamble to the Final Rule at 7208.

15 We refer to both sets of petitioners as they refer to themselves.

16 The Farm Petitioners also challenge the CAFO Rule for impermissibly assuming jurisdiction over all “surface waters,” when the Clean Water Act confers upon the EPA the authority to regulate only “navigable waters,” a term defined by the Act to mean “waters of the United States, including the territorial seas.” 33 U.S.C. § 1362(7). The EPA has clarified, however, that the CAFO Rule employs the term “surface waters” only in an effort to distinguish surface water from groundwater and that the Agency fully recognizes that its regulatory authority encompasses only the “waters of the United States, including the territorial seas.” Given these clarifications, we deny the Farm Petitioners’ challenge as moot.

- 17 We note that the EPA has authorized 45 States and the Virgin Islands to administer the NPDES program. See Preamble to the Final Rule at 7185.
- 18 Admittedly, the Ninth Circuit predicated its holding on a violation of a statutory provision different from the provisions at issue in this case. To wit, the Ninth Circuit held that the Phase II Rule violated [33 U.S.C. § 1342\(p\)\(3\)\(B\)\(iii\)](#), a provision that specifically pertains to municipal storm sewer discharges and that allows permits for such discharges to issue only where the permits “require controls to reduce the discharge of pollutants to the maximum extent practicable.” [33 U.S.C. § 1342\(p\)\(3\)\(B\)\(iii\)](#). See [EDC, 344 F.3d at 855–56](#). This is, however, a distinction without a difference. The demand that permits authorizing municipal storm sewer discharges must “require controls” is, in sum and substance, identical to the demand that permits authorizing discharges from *other* point sources must “assure compliance with” applicable effluent limitations. Both provisions require regulation of discharges *in fact*.
- 19 There may well be reason to fear that Large CAFOs may misunderstand their specific situation and prepare inadequate nutrient management plans as a result. Even the EPA has acknowledged that crafting proper waste application rates is a complicated task—that is why the EPA expressly recommended, but notably did not require, that waste application rates be prepared by those who are “competent in or have an understanding of a number of technical areas, including soil science and soil fertility, nutrient application and management, crop production, soil and manure testing and results interpretation, fertilizer materials and their characteristics, BMPs [best management practices] for the management of nutrients and water, and applicable laws and regulations.” Preamble to the Final Rule at 7213. Tellingly, the EPA also specifically recognized, in the Preamble to the CAFO Rule, that “USDA, and other organizations such as the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and a number of land grant universities, recommend that nutrient management plans be prepared by trained and certified specialists.” *Id.*
- 20 On its face, the Rule requires CAFOs—like state permitting authorities—to develop nutrient management plans based on “field-specific assessments.” [40 C.F.R. § 412.4\(c\)\(1\)](#). However, it is clear that each CAFO must make such “field-specific assessments” on a site-by-site basis; that is, each CAFO must determine what the relevant field conditions are at its site in order to determine its site-specific waste application rate. See Preamble to the Final Rule at 7209 (“Today’s rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.”) (emphasis added); see *also id.* at 7213 (“The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.”) (emphasis added).
- 21 We also point out that our reading of [33 U.S.C. § 1311\(e\)](#) does not render superfluous the “may be” language included in the statutory definition of point source. In our view, the “may be” language can be read to clarify the reach of the EPA’s power to seek injunctive relief. See [33 U.S.C. § 1319\(b\)](#); see generally [Weinberger v. Romero-Barcelo, 456 U.S. 305, 102 S.Ct. 1798, 72 L.Ed.2d 91 \(1982\)](#).
- 22 Because we find that the EPA lacks statutory authorization to require potential dischargers to apply for NPDES permits, we need not consider whether the record here supports the EPA’s determination that Large CAFOs may reasonably be presumed to be such potential dischargers. We hasten to note, however, that if Congress were to amend the Clean Water Act to permit the imposition of a duty-to-apply, we believe the EPA would have ample reason to consider imposing this duty upon Large CAFOs. In our view, the EPA has marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent the permitting process. See, e.g., Proposed Rule at 2976–77 (noting that, according to the 1998 National Water Quality Inventory, the agricultural sector was the leading contributor to identified water quality impairments in the nation’s rivers and lakes); *id.* at 3008 (“since the inception of the NPDES permitting program in the 1970s, a relatively small number of larger CAFOs has actually sought permits”); see *also* Preamble to the Final Rule at 7180 (describing a rise in the excess manure nutrients produced by animal feeding operations); *id.* at 7181 (detailing the ecological and human health impacts caused by CAFO manure and wastewater), *id.* at 7237 (noting the pollutants present in manure and other CAFO wastes and describing how they contribute to the impairment of water quality).

We also note that the EPA has not argued that the administrative record supports a regulatory presumption to the effect that Large CAFOs *actually* discharge. As such, we do not now consider whether, under the Clean Water Act as it currently exists, the EPA might properly presume that Large CAFOs—or some subset thereof—actually discharge. See generally [NLRB v. Curtin Matheson Scientific, Inc., 494 U.S. 775, 110 S.Ct. 1542, 108 L.Ed.2d 801 \(1990\)](#); [National Mining Ass’n v. Babbitt, 172 F.3d 906 \(D.C.Cir.1999\)](#).

- 23 For example, the Environmental Petitioners substantially rely on a statement from Senator Robert Dole acknowledging the environmental threat posed by “[p]recipitation runoff” from areas storing animal and poultry waste. 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 1295 (1973). Senator Dole did not at all suggest that the Act aimed, in fact, to regulate precipitation runoff. His statement about precipitation runoff was merely part of a larger discussion about the general environmental threat posed by animal and poultry waste. To wit, he stated that: “In these modern facilities, the use of bedding and litter has been greatly reduced; consequently, the manure which is produced remains essentially in the liquid state and is much more difficult to handle without odor and pollution problems. Precipitation runoff from these areas picks up high concentrates of pollutants, which reduce oxygen levels in receiving streams and lakes and accelerate the eutrophication process.” *Id.*
- 24 We note, moreover, that while the EPA had previously classified CAFO discharges as industrial, rather than agricultural, the Agency has here adequately justified that change on the ground that “[w]hen manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it... fulfills an important agricultural purpose, namely the fertilization of crops...” Preamble to the Final Rule at 7197. *Cf. Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company*, 463 U.S. 29, 42, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (where an agency has changed course it is “obligated to supply a reasoned analysis for the change.”). Because the EPA also put the public on notice of the substantive change, see Proposed Rule at 3029–32, it has complied with all applicable procedural requirements.
- 25 We note that, in this respect, *Catskill Mountains* is in complete accord with *Southview Farm*. Implicit in *Southview Farm* is the idea that when a discharge from a land application area under the control of a CAFO is primarily caused by rain, such a discharge is not subject to regulation because the rain—not the CAFO—is the proximate source of the discharge; but when “run-off [is] primarily caused by the over-saturation of the fields rather than the rain and [there are] sufficient quantities of manure ... present,” *Southview Farm*, 34 F.3d at 121, such a discharge is subject to regulation because the CAFO—not the rain—is the proximate source of the discharge.
- 26 As the EPA explained in the Preamble to the Proposed Rule and reaffirmed in its brief in this consolidated petition, even under Option 2, permit writers [are] required to consider whether a facility is located in an area where its hydrogeology makes it likely that the ground water underlying the facility is hydrologically connected to surface water and whether a discharge to surface water from the facility through such hydrologically connected ground water may cause or contribute to a violation of State water quality standards. In cases where such a determination was made by the permit writer, he or she would impose appropriate conditions to prevent discharge via a hydrologic connection [and that these conditions] would be included in the permit.
- Proposed Rule at 3062. It is thus clear that when the EPA stated, in the Preamble to the Final Rule, that “requirements limiting the discharge of pollutants to surface water via groundwater ... are beyond the scope of today's ELGs,” Preamble to the Final Rule at 7216, the EPA meant only that uniform national requirements are beyond the scope of today's ELGs. The EPA did not, in other words, mean to suggest that NPDES authorities lacked the power to impose groundwater-related requirements on a case-by-case basis, where necessary.
- 27 Because the Clean Water Act “imposes no obligation on EPA to subdivide industries so that each point-source category contains identical producers,” *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 655 (1st Cir.1979), we reject the Environmental Petitioners' claim that EPA should segregate poultry CAFOs out of Subpart D and separately consider the costs of imposing Option 5 on them.
- 28 We agree with the Environmental Petitioners that the EPA's economic determinations are not—as the EPA puts it—entitled to “heightened deference.” Deference, not “heightened” deference, is due.
- 29 We also uphold, as reasonable, EPA's decision not to rely on “long-run market adjustments,” given that these, too, are inherently uncertain and difficult to predict and that, in any event, adjustments for the long-run might “mask severe financial effects at regulated CAFOs in the short-run.” See EPA, FINAL RULE ECONOMIC ANALYSIS 2–64 (Dec.2002).
- 30 We find that, contrary to the EPA's argument, the Environmental Petitioners are not barred from bringing this claim, because one comment expressly addressed the inadequacy of the Agency's pathogen reduction measures, see Excerpt Number CAFO201424–27 in EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS at 9–81 (Dec.2002) and because, in any event, the Agency clearly considered its statutory obligation to impose pathogen reduction measures in the course of promulgating the CAFO Rule. See *Nat'l Resources Def. Council, Inc. v. EPA*, 824 F.2d 1146, 1151 (D.C.Cir.1987).

- 31 Because the EPA never made an affirmative finding that the other ELGs adopted by the CAFO Rule constitute the *best* conventional pollutant control technology, we need not address whether EPA reasonably rejected other pathogen controls. The rejection of those controls is not properly before this Court.
- 32 The Environmental Petitioners argue that the Preamble to the Final Rule can be construed to give the term “agricultural stormwater discharge” a broader definition than the one provided in 40 C.F.R. § 122.23(e). Because the Preamble at one point states that where a CAFO has developed site specific practices to ensure appropriate agricultural utilization of nutrients, “[a]ny remaining discharge ... would be covered by the agricultural storm water exemption,” the Environmental Petitioners claim that the agricultural stormwater exemption might be read to include even “dry weather discharges,” i.e., discharges not caused by rain. Preamble to the Final Rule at 7198. We disagree. First and most importantly, the CAFO Rule itself provides that only a “precipitation-related discharge” can be classified as agricultural stormwater. 40 C.F.R. § 122.23(e). Dry-weather discharges are, by definition, not precipitation-related. Second, the Preamble expressly states—in the paragraph preceding the statement that the Environmental Petitioners construe as suggesting a broader definition of agricultural stormwater—that “any dry weather discharge of manure or process wastewater resulting from its application to land area [sic] under the control of a CAFO would not be considered an agricultural storm water discharge and would thus be subject to Clean Water Act requirements.” Preamble to the Final Rule at 7198. Thus, the agricultural stormwater exemption encompasses only those discharges that the CAFO Rule defines as agricultural stormwater, that is, a “precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO” where the “manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization.” 40 C.F.R. § 122.23(e).
- 33 To be clear, we are not asked to consider—and we accordingly do not consider—whether EPA is statutorily required, in the first instance, to investigate the propriety of imposing WQBELs. Here, we hold only that where the EPA has made a determination, one way or the other, about the propriety of imposing WQBELs, that determination must be reasonable and supported in the record, i.e., not arbitrary and capricious.
- 34 The Environmental Petitioners moved to clarify and/or supplement the administrative record on appeal to include certain documents exchanged between the EPA and the Office of Management and Budget. They so moved because, in their view, the EPA–OMB documents supported their challenges to (a) the EPA's failure to promulgate WQBELs and (b) the CAFO Rule's new source performance standard for swine, poultry, and veal. Because we have granted both these challenges without even considering the EPA–OMB documents, we deny the Environmental Petitioners' motion as moot.

ATTACHMENT

5

725 F.3d 1194

United States Court of Appeals,
Ninth Circuit.

West Headnotes (9)

NATURAL RESOURCES DEFENSE**COUNCIL, INC.**; Santa Monica

Baykeeper, Plaintiffs–Appellants,

v.

COUNTY OF LOS ANGELES; Los Angeles County

Flood Control District; Michael Antonovich, in
his official capacity as Supervisor; Yvonne Burke,in her official capacity as Supervisor; Gloria
Molina, in her official capacity as Supervisor; Zev
Yaroslavsky, in his official capacity as Supervisor;Dean D. Efstathiou, in his official capacity as
Acting Director of [Los Angeles County Department
of Public Works](#); Don Knabe, in his official
capacity as Supervisor, Defendants–Appellees.

No. 10–56017.

|

Aug. 8, 2013.

Synopsis

Background: Environmental organizations brought action against California municipal entities, alleging that they were discharging urban stormwater runoff into navigable waters in violation of the Clean Water Act (CWA). The United States District Court for the Central District of California, [A. Howard Matz, J.](#), entered a partial final judgment in favor of defendants, and plaintiffs appealed. On denial of rehearing en banc, the Court of Appeals, [673 F.3d 880](#), affirmed in part, reversed in part, and remanded. Certiorari was granted. — *U.S.* —, [133 S.Ct. 710, 184 L.Ed.2d 547](#), reversed and remanded.

[Holding:] On remand, the Court of Appeals, Milan D. Smith, Jr., held that pollution exceedances detected at monitoring stations of County of Los Angeles and Los Angeles County Flood Control District were sufficient to establish County defendants' liability as matter of law for violations of terms of their National Pollutant Discharge Elimination System (NPDES) permit.

Reversed and remanded.

[1] Environmental Law**🔑 Discharge of pollutants**

In nearly all cases, a National Pollutant Discharge Elimination System (NPDES) permit is required before anyone may lawfully discharge a pollutant from a point source into the navigable waters of the United States. Clean Water Act, §§ 301(a), 402, [33 U.S.C.A. §§ 1311\(a\), 1342](#).

[7 Cases that cite this headnote](#)**[2] Environmental Law****🔑 Reporting, notice, and monitoring requirements**

Pollution exceedances detected at monitoring stations of County of Los Angeles and Los Angeles County Flood Control District were sufficient to establish County defendants' liability as matter of law for violations of terms of their National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to Clean Water Act, since data collected at monitoring stations was intended to determine whether permittees were in compliance with permit, and extrinsic considerations, including Clean Water Act's monitoring requirements, also supported that conclusion; limiting permittee's responsibility to “discharge[s] for which it is the operator” applied to appropriate remedy for permit violations, not to liability for those violations. Clean Water Act, § 402(a)(2), (k), [33 U.S.C.A. § 1342\(a\)\(2\), \(k\)](#); [40 C.F.R. §§ 122.26\(d\)\(2\)\(i\)\(F\), 122.41\(a\), 122.44\(i\)\(1\)](#); [Restatement \(Second\) of Contracts § 203\(a\)](#).

[7 Cases that cite this headnote](#)**[3] Federal Courts****🔑 Mandate**

No opinion of the circuit becomes final until the mandate issues. [F.R.A.P.Rule 41\(c\)](#), [28 U.S.C.A.](#)

[3 Cases that cite this headnote](#)

[4] Federal Courts

🔑 [Law of the case in general](#)

Federal Courts

🔑 [Mandate](#)

Earlier judgment by Court of Appeal was not final, and it could not be considered the law of the case, since mandate in case had not issued.

[3 Cases that cite this headnote](#)

[5] Environmental Law

🔑 [Violations and liability in general](#)

A permittee violates the CWA when it discharges pollutants in excess of the levels specified in the permit, or where the permittee otherwise violates the permit's terms. Clean Water Act, § 402(k), [33 U.S.C.A. § 1342\(k\)](#); [40 C.F.R. § 122.41\(a\)](#).

[9 Cases that cite this headnote](#)

[6] Environmental Law

🔑 [Discharge of pollutants](#)

If the language of a National Pollutant Discharge Elimination System (NPDES) permit, considered in light of the structure of the permit as a whole, is plain and capable of legal construction, the language alone must determine the permit's meaning; however, if the permit's language is ambiguous, a court may turn to extrinsic evidence to interpret its terms. Clean Water Act, § 402(k), [33 U.S.C.A. § 1342\(k\)](#); [40 C.F.R. § 122.41\(a\)](#).

[12 Cases that cite this headnote](#)

[7] Environmental Law

🔑 [Discharge of pollutants](#)

A court must give effect to every word or term in a National Pollutant Discharge Elimination System (NPDES) permit and reject none as

meaningless or surplusage; therefore, a court must interpret the permit in a manner that gives full meaning and effect to all of the permit's provisions and avoid a construction of the permit that focuses only on a few isolated provisions. Clean Water Act, § 402(k), [33 U.S.C.A. § 1342\(k\)](#); [40 C.F.R. § 122.41\(a\)](#); [Restatement \(Second\) of Contracts § 203\(a\)](#).

[4 Cases that cite this headnote](#)

[8] Environmental Law

🔑 [Discharge of pollutants](#)

One of a court's obligations in interpreting an National Pollutant Discharge Elimination System (NPDES) permit is to determine the intent of the permitting authority; thus, a court gives significant weight to any extrinsic evidence that evinces the permitting authority's interpretation of the relevant permit. Clean Water Act, § 402(a)(2), (k), [33 U.S.C.A. § 1342\(a\)\(2\), \(k\)](#); [40 C.F.R. §§ 122.26\(d\)\(2\)\(i\)\(F\), 122.41\(a\), 122.44\(i\)\(1\)](#).

[5 Cases that cite this headnote](#)

[9] Environmental Law

🔑 [Discharge of pollutants](#)

A court does not defer to the interpretation of CWA National Pollutant Discharge Elimination System (NPDES) permit by a regional board. Clean Water Act, § 402, [33 U.S.C.A. § 1342](#).

[9 Cases that cite this headnote](#)

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On Remand from the United States Supreme Court. D.C. No. 2:08–cv–01467–AHM–PLA.

Before: [HARRY PREGERSON](#) and [MILAN D. SMITH, JR.](#), Circuit Judges, and [H. RUSSEL HOLLAND](#), Senior District Judge.*

OPINION

[M. SMITH](#), Circuit Judge:

Plaintiffs–Appellants Natural Resources Defense Council and Santa Monica Baykeeper (collectively, the Plaintiffs) filed suit against the County of Los Angeles and the Los Angeles County Flood Control District (collectively, the County Defendants) alleging that the County Defendants are discharging polluted stormwater in violation of the terms of their National Pollutant Discharge Elimination System (NPDES) permit, issued pursuant to the Federal Water Pollution Control Act (the Clean Water Act, Act, or CWA), 86 Stat. 816, codified as amended at [33 U.S.C. §§ 1251, et seq.](#) The district court granted the County Defendants' motion for summary judgment, reasoning that Plaintiffs failed to prove that any *individual* defendant had discharged pollutants in violation of the Clean Water Act, where Plaintiffs' only evidence of violations was monitoring data taken downstream of the County Defendants' (and others') discharge points, as opposed to data sampled at the relevant discharge points themselves. On appeal, we affirmed the district court's judgment in part and reversed in part. [Natural Res. Def. Council, Inc. v. Cnty. of L.A.](#), [673 F.3d 880](#) (9th Cir.2011). On January 8, 2013, the Supreme Court reversed our judgment and remanded this case to us for further proceedings. [L.A. Cnty. Flood Control Dist. v. Natural Res. Def. Council, Inc.](#), — U.S. —, [133 S.Ct. 710](#), [184 L.Ed.2d 547](#) (2013). On February 19, 2013, we ordered the parties to file supplemental briefs addressing the implications of the Supreme Court's ruling. Having considered the Supreme Court's ruling, the responses of the parties in their supplemental briefs, and other matters noted [*1197](#) herein, we now conclude that the pollution exceedances detected at the County Defendants' monitoring stations are sufficient to establish the County Defendants' liability for NPDES permit violations as a matter of law. Accordingly, we once again reverse the district court's grant of summary judgment in favor of the County Defendants, and remand to the district court for a

determination of the appropriate remedy for the County Defendants' violations.

FACTUAL BACKGROUND

I. Stormwater Runoff in Los Angeles County

Stormwater runoff is surface water generated by precipitation events, such as rainstorms, which flows over streets, parking lots, commercial sites, and other developed parcels of land. When stormwater courses over urban environs, it frequently becomes polluted with contaminants, such as “suspended metals, sediments, algae-promoting nutrients (nitrogen and phosphorus), floatable trash, used motor oil, raw sewage, [and] pesticides[.]” ¹ [Envtl. Def. Ctr., Inc. v. EPA](#), [344 F.3d 832, 840](#) (9th Cir.2003). This polluted stormwater often makes its way into storm drains and sewers, which “generally channel collected runoff into federally protected water bodies,” *id.*, such as rivers and oceans. Consequently, stormwater runoff has been recognized as “one of the most significant sources of water pollution in the nation, at times comparable to, if not greater than, contamination from industrial and sewage sources.” *Id.* (citation omitted).

Los Angeles County (the County) is home to more than 10 million people and covers a sprawling amalgam of populous incorporated cities and significant swaths of unincorporated land. The Los Angeles County Flood Control District (the District) is a public entity governed by the Los Angeles County Board of Supervisors and the Los Angeles County Department of Public Works. The District comprises 84 cities and some unincorporated areas of the County. The County and the District are separate legal entities.

Each city in the District operates a municipal separate storm sewer system (ms4)² that is composed of gutters, catch basins, storm drains, and pipes that collect and convey stormwater. The County also operates its own ms4 that primarily collects and conveys stormwater runoff in the unincorporated areas of the County. Each of these ms4s connects to the District's substantially larger ms4, an extensive flood-control and storm-sewer infrastructure [*1198](#) consisting of approximately 500 miles of open channels and 2,800 miles of storm drains. Because a comprehensive map of the County Defendants' storm sewer system does not exist, no one knows the exact

size of the LA MS4³ or the locations of all of its storm drain connections and outfalls.⁴ But while the number and location of storm drains and outfalls are too numerous to catalog, it is undisputed that the LA MS4 collects and channels stormwater runoff from across the County. It is similarly undisputed that untreated stormwater is discharged from LA MS4 outfalls into various watercourses, including the Los Angeles and San Gabriel Rivers.⁵ These rivers, in turn, drain into several coastal waters, including, among others, the Santa Monica Bay and the Pacific Ocean.

II. The County Defendants' NPDES Permit

[1] Section 301(a) of the CWA prohibits the “discharge of any pollutant” from any “point source” into “navigable waters” unless the discharge complies with certain other sections of the CWA.⁶ See 33 U.S.C. § 1311(a). One of those sections is section 402, which provides for the issuance of NPDES permits. 33 U.S.C. § 1342. In nearly all cases, an NPDES permit is required before anyone may lawfully discharge a pollutant from a point source into the navigable waters of the United States. See *Arkansas v. Oklahoma*, 503 U.S. 91, 101–02, 112 S.Ct. 1046, 117 L.Ed.2d 239 (1992); *Environmental Law Handbook* 323 (Thomas F.P. Sullivan ed., 21st ed.2011).

Congress has empowered the EPA Administrator to delegate NPDES permitting authority to state agencies. 33 U.S.C. § 1342(b). Pursuant to this authority, the EPA has authorized the State of California to develop water quality standards and issue NPDES permits. Pursuant to the Porter–Cologne Water Quality Control Act, California state law designates the State Water Resources Control Board and *1199 nine regional boards as the principal state agencies charged with enforcing federal and state water pollution laws and issuing NPDES permits. See *Cal. Water Code* §§ 13000 *et seq.* The entity responsible for issuing permits in the Los Angeles area is the California State Water Resources Control Board for the Los Angeles Region (the Regional Board).

On June 18, 1990, the Regional Board first issued an NPDES permit (the Permit) regulating stormwater discharges by the County, the District, and the 84 incorporated municipalities in the District (collectively, the Permittees). The Permit has subsequently been renewed or amended several times, and the version of the Permit at issue in this litigation came into force

on December 13, 2001.⁷ The Permit covers all relevant discharges that occur “within the boundaries of the Permittee municipalities ... over which [the municipalities have] regulatory jurisdiction as well as unincorporated areas in Los Angeles County within the jurisdiction of the Regional Board.”

The Permit runs to 99 pages and contains a myriad of rules, regulations, and conditions regarding the Permittees' operation of the LA MS4. However, only two sets of the Permit's provisions are particularly relevant to this appeal; those contained in Part 2, titled “Receiving Water Limitations,” and those contained in the section titled “Monitoring and Reporting Program.”

Part 2 places limits on the type and amount of pollutants the Permittees may lawfully discharge from the LA MS4. Specifically, Part 2 prohibits “discharges from the [LA] MS4 that cause or contribute to the violation of the Water Quality Standards or water quality objectives.”⁸ The Permit defines “Water Quality Standards and Water Quality Objectives” as “water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federal approved surface water quality plans.”⁹ Succinctly put, the Permit incorporates the pollution standards promulgated in other agency documents such as the Basin Plan, and prohibits stormwater discharges that “cause or contribute to the violation” of those incorporated standards. The Permit further provides that the Permittees “shall comply” with the LA MS4 discharge prohibitions outlined in Part 2 “through timely implementation of control measures and other actions to reduce pollutants in the[ir LA MS4] discharges....”

The Monitoring and Reporting Program complements Part 2. Under that program, the Permittees are required to monitor the impacts of their LA MS4 discharges on water quality and to publish the results of all pollution monitoring at least annually. The primary objectives of the monitoring program include “assessing compliance” with the Permit, “measuring and improving the effectiveness” of the Los Angeles Countywide Stormwater Quality Management Program (SQMP),¹⁰ and assessing *1200 the environmental impact of urban runoff on the receiving waters in the County.

One of the principal ways the Permittees are required to monitor their LA MS4 discharges is through mass-emissions monitoring. Mass-emissions monitoring measures all constituents present in water, and the readings give a cumulative picture of the pollutant load in a waterbody. The Permit requires the District, as Principal Permittee, to conduct mass-emissions monitoring at seven enumerated monitoring stations located throughout the County. The District is also responsible for analyzing the resulting data and submitting a comprehensive report of its findings.¹¹ According to the Permit, the purpose of mass-emissions monitoring is to: (1) estimate the mass emissions from the LA MS4; (2) assess trends in the mass emissions over time; and (3) determine if the LA MS4 is contributing to exceedances of Water Quality Standards by comparing the monitoring results to the applicable pollution standards promulgated in the Basin Plan and similar documents.

The Permittees sited a mass-emissions monitoring station in both the Los Angeles and San Gabriel Rivers (collectively, the Monitoring Stations). The Los Angeles River monitoring station is located in a channelized portion of the Los Angeles River that runs through the City of Long Beach.¹² The San Gabriel River monitoring station is located in a channelized portion of the San Gabriel River that runs through the City of Pico Rivera. The Monitoring Stations are located downstream of numerous LA MS4 outfalls controlled by the County Defendants and various other non-party Permittees.

Between 2002 and 2008, when this case was filed, the District published annual monitoring reports that contain the data that the District collected at the Monitoring Stations. According to those reports, the Monitoring Stations identified 140 separate exceedances of the Permit's water quality standards, including excessive levels of aluminum, [copper](#), cyanide, zinc, and fecal coliform bacteria in both the Los Angeles and San Gabriel Rivers. The County Defendants do not dispute the accuracy of the monitoring data.

PROCEDURAL BACKGROUND

Using the monitoring data self-reported by the District, Plaintiffs cataloged the *1201 water quality exceedances measured in various receiving waters in the County. Beginning on May 31, 2007, Plaintiffs sent a series of

notice letters to the County Defendants informing them that Plaintiffs believed that they were violating the terms of the Permit.¹³ Specifically, Plaintiffs contended that the water quality exceedances documented in the District's monitoring reports demonstrated liability under the CWA. Dissatisfied with the County Defendants' response to these letters, Plaintiffs brought this citizen-enforcement action on March 3, 2008. After the district court dismissed certain elements of the Plaintiffs' initial complaint because notice of the Permit violations was defective, Plaintiffs sent the County Defendants an adequate notice letter on July 3, 2008.

Plaintiffs filed their First Amended Complaint on September 18, 2008. In the complaint, Plaintiffs asserted six causes of action under the CWA. Four of the Plaintiffs' claims, which the district court designated the "Watershed Claims," were initially before us on appeal. The first three Watershed Claims allege that, beginning in 2002 or 2003, the County Defendants caused or contributed to exceedances of water quality standards in the Santa Clara River (Claim 1), the Los Angeles River (Claim 2), and the San Gabriel River (Claim 3), in violation of [33 U.S.C. §§ 1311\(a\), 1342\(p\)](#). The fourth Watershed Claim alleges that, beginning in 2002, County Defendants caused or contributed to exceedances of the water quality standards and violated the total maximum daily load limits in Malibu Creek. All of the Watershed Claims rest on the same premise: (1) the Permit incorporates water-quality limits for each receiving water body; (2) mass-emissions monitoring stations have recorded pollutant loads in the receiving water bodies that exceed those permitted under the relevant standards; (3) an exceedance constitutes non-compliance with the Permit and, thereby, the Clean Water Act; and (4) County Defendants, as holders of the Permit and joint operators of the LA MS4, are liable for these exceedances under the Act.

Early in the litigation, the district court bifurcated liability and remedy, and all proceedings related to remedy were stayed until liability was determined. On March 2, 2010, the district court denied all parties' cross-motions for summary judgment with regard to liability. [NRDC v. Cnty. of L.A., No. CV 08-1467-AHM, 2010 WL 761287 \(C.D.Cal. Mar. 2, 2010\)](#), amended on other grounds, [2011 WL 666875 \(C.D.Cal. Jan. 27, 2011\)](#). Although the district court accepted Plaintiffs' arguments that the Permit "clearly prohibits 'discharges from the [LA] MS4 that cause or contribute to the violation of Water

Quality Standards or water quality objectives,' ” 2010 WL 761287, at *6, and that mass-monitoring stations “are the proper monitoring locations to determine if the [LA] MS4 is contributing to exceedances” of the Water Quality Standards or water quality objectives, *id.*, the district court held that Plaintiffs were improperly attempting to use the District's self-reported monitoring data to establish liability without presenting evidence that any individual defendant was discharging pollutants that “cause[d] or contribute[d] to the violation” of the water quality standards. *Id.* The district court observed that although “the District is responsible for the pollutants in the [LA] MS4” at the time they pass the Monitoring Stations, “that does not necessarily determine the question of whether the water passing by these points is a *1202 ‘discharge’ within the meaning of the Permit and the Clean Water Act.” *Id.* at *7. Unable to determine whether any of the County Defendants' upstream LA MS4 outflows were contributing polluted stormwater to navigable waters, the district court stated that “Plaintiffs would need to present some evidence (monitoring data or an admission) that some amount of a standards-exceeding pollutant is being discharged through at least one District outlet.” *Id.* at *8.

Following supplemental briefing, the district court again determined that “Plaintiffs failed to present evidence that the standards-exceeding pollutants passed through the Defendants' [LA] MS4 outflows at or near the time the exceedances were observed. Nor did Plaintiffs provide any evidence that the mass emissions stations themselves are located at or near a Defendant's outflow.” The district court thus entered summary judgment for the County Defendants on the Watershed Claims.

On June 9, 2010, the district court entered a partial final judgment on the Watershed Claims under Fed.R.Civ.P. 54(b). The court reasoned that an interlocutory appeal was appropriate because the Watershed Claims are “factually and legally severable” from the Plaintiffs' other claims and “[t]he parties and the Court would benefit from appellate resolution of the central legal question underlying the watershed claims: what level of proof is necessary to establish defendants' liability.” The Plaintiffs timely appealed.

On appeal, the Plaintiffs pressed the same legal argument they advanced in the district court: that the data published in the County Defendants' annual monitoring reports—data which shows undisputed pollution exceedances

at the mass-emissions monitoring stations—conclusively establishes the County Defendants' liability for Permit violations as a matter of law. Like the district court, we rejected this contention and held that the Plaintiffs must submit at least some additional proof of the County Defendants' *individual* contributions to the measured Permit violations. See *Natural Res. Def. Council*, 673 F.3d at 898 (noting that “the Clean Water Act does not prohibit ‘undisputed’ exceedances; it prohibits ‘discharges’ that are *not* in compliance with the Act.... While it may be undisputed that exceedances have been detected, responsibility for those exceedances requires proof that some entity discharged a pollutant.”).

Nonetheless, we held the District liable for CWA violations in the Los Angeles and San Gabriel Rivers because we concluded that the mass-emissions monitoring stations for each river are “located in a section of the [LA] MS4 owned and operated by the District” and that “when pollutants were detected, they had not yet exited the point source into navigable waters.” *Id.* at 899. We further clarified that “[t]he [relevant] discharge from a point source occurred when the still-polluted stormwater flowed out of the concrete channels where the Monitoring Stations are located, through an outfall, and into the navigable waterways. We agree with Plaintiffs that the precise location of each outfall is ultimately irrelevant because there is no dispute that [the LA] MS4 eventually adds stormwater to the Los Angeles and San Gabriel Rivers downstream from the Monitoring Stations.” *Id.* at 900.

On October 11, 2011, the District filed a petition for writ of certiorari, 2011 WL 4874090, which was granted in part on June 25, 2012. *L.A. Cnty. Flood Control Dist. v. Natural Res. Def. Council, Inc.*, — U.S. —, 133 S.Ct. 23, 183 L.Ed.2d 673 (2012). The Supreme Court granted review in order to answer a single question: “Under the CWA, does a discharge of pollutants occur when polluted water *1203 flows from one portion of a river that is navigable water of the United States, through a concrete channel or other engineered improvement in the river, and then into a lower portion of the same river?” *L.A. Cnty. Flood Control Dist.*, 133 S.Ct. at 712–13 (internal quotation marks omitted). The Court answered in the negative, and re-affirmed its holding in *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 124 S.Ct. 1537, 158 L.Ed.2d 264 (2004), that “pumping polluted water from one part of a water body into another

part of the same body is not a discharge of pollutants under the CWA.” *L.A. Cnty. Flood Control Dist.*, 133 S.Ct. at 711. The Court did not address any other basis for the District's potential liability for Permit violations and instead reversed our prior judgment and remanded this case to us for additional proceedings. *Id.* at 713–14.

JURISDICTION AND STANDARD OF REVIEW

We have jurisdiction under 28 U.S.C. § 1291. We review the district court's grant of summary judgment de novo. *Assoc. to Protect Hammersley, Eld, & Totten Inlets v. Taylor Res., Inc.*, 299 F.3d 1007, 1009 (9th Cir.2002).

DISCUSSION

I.

[2] Plaintiffs return from the Supreme Court with the same argument they have consistently advanced throughout this litigation—that the County Defendants' monitoring data establishes their liability for Permit violations as a matter of law. We previously rejected this argument, see *Natural Res. Def. Council*, 673 F.3d at 898, and the Supreme Court explicitly declined to address it.¹⁴

On remand, the County Defendants argue that we may not reconsider our earlier decision because it has become “final,” and because “reconsideration of Appellants' monitoring argument would fly in the face of the finality given to decisions of this Court after denial of rehearing or expiration of the time in which to seek such further review.” Alternatively, the County Defendants argue that our earlier disposition should be left undisturbed because it has become the law of the case. The County Defendants are mistaken on both counts.

[3] [4] “No opinion of this circuit becomes final until the mandate issues[.]” *Carver v. Lehman*, 558 F.3d 869, 878 (9th Cir.2009); see also *Fed R.App. P.* 41(c), 1998 Adv. Comm. Note (“A court of appeals' judgment or order is not final until issuance of the mandate[.]”). Thus, we have explained that a “court of appeals may modify or revoke its judgment at any time prior to issuance of the mandate, sua sponte or by motion of the parties.” *United States v. Foumai*, 910 F.2d 617, 620 (9th Cir.1990). The

mandate in this case has not issued. Consequently, our earlier judgment is not final. *Carver*, 558 F.3d at 878. Nor can it be considered the law of the case. See *id.* at 878 n. 16 (“[U]ntil the mandate issues, an opinion is not fixed as settled Ninth Circuit law, and reliance on the opinion is a gamble.” (citation omitted)); see also *1204 *Key Enters. of Del., Inc. v. Venice Hosp.*, 9 F.3d 893, 898 (11th Cir.1993) (“[B]ecause the panel's mandate had not issued, the panel's decision was never the ‘law of the case.’”). Put simply, we are free to reconsider the merits of Plaintiffs' argument, and we now do so.

II.

[5] Where a permittee discharges pollutants in compliance with the terms of its NPDES permit, the permit acts to “shield” the permittee from liability under the CWA. 33 U.S.C. § 1342(k). The permit shield is a major benefit to a permittee because it protects the permittee from any obligation to meet more stringent limitations promulgated by the EPA unless and until the permit expires. See *Piney Run Pres. Ass'n v. Cnty. Comm'rs of Carroll Cnty.*, 268 F.3d 255, 266–69 (4th Cir.2001); see also *The Clean Water Act Handbook* 67 (Mark A. Ryan ed., 3rd ed.2011). Of course, with every benefit comes a cost: a permittee violates the CWA when it discharges pollutants in excess of the levels specified in the permit, or where the permittee otherwise violates the permit's terms. See *Russian River Watershed Prot. Comm. v. City of Santa Rosa*, 142 F.3d 1136, 1138 (9th Cir.1998); see also 40 C.F.R. § 122.41(a) (“Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for [an] enforcement action”); *Nw. Envtl. Advocates v. City of Portland*, 56 F.3d 979, 986 (9th Cir.1995) (noting that “[t]he plain language of [the CWA citizen suit provision] authorizes citizens to enforce all permit conditions”); *Environmental Law Handbook* 327 (“The primary purpose of NPDES permits is to establish enforceable effluent limitations.”).

Plaintiffs allege that the County Defendants are violating the terms of the Permit by discharging pollutants into the Los Angeles and San Gabriel Rivers in excess of the permitted levels. County Defendants do not dispute that they are discharging pollutants from the LA MS4 into these rivers. Nor can the County Defendants dispute that their own monitoring reports demonstrate that pollution levels recorded at the Monitoring Stations

are in excess of those allowed under the Permit. Rather, the County Defendants focus on their perception of the evidentiary burden Plaintiffs must satisfy in order to hold any individual defendant liable for these pollution exceedances. Plaintiffs contend that they may rely exclusively on the District's monitoring reports to establish liability. County Defendants, however, argue that they cannot be held liable for Permit violations based solely on the data published in the District's monitoring reports because: (1) the mass-emissions monitoring required under the Permit was “neither designed nor intended” to measure the compliance of any Permittee; and (2) the monitoring data cannot parse out precisely *whose* discharge(s) contributed to any given exceedance because the Monitoring Stations sample pollution levels downstream from a legion of discharge points (*e.g.*, LA MS4 outfalls) controlled by various Permittees and other non-party entities, as opposed to at the discharge points themselves.

[6] To resolve the parties' contentions, we must interpret the language of the Permit. Although the NPDES permitting scheme can be complex, a court's task in interpreting and enforcing an NPDES permit is not—NPDES permits are treated like any other contract. *See Nw. Env'tl. Advocates*, 56 F.3d at 982 (“We review the district court's interpretation of the 1984 permit as we would the interpretation of a contract or other legal document.”).¹⁵ If the language of the permit, considered in light of the structure of the permit as a *1205 whole, “is plain and capable of legal construction, the language alone must determine the permit's meaning.” *Piney Run Pres. Ass'n*, 268 F.3d at 270 (citation omitted). If, however, the permit's language is ambiguous, we may turn to extrinsic evidence to interpret its terms. *Id.* Our sole task at this point of the case is to determine what Plaintiffs are required to show in order to establish *liability* under the terms of *this particular* NPDES permit.¹⁶

A. The Plain Language of the Permit

“[NPDES permit] terms are to be given their ordinary meaning, and when the terms of a [permit] are clear, the intent of the parties must be ascertained from the [permit] itself.” *Klamath Water Users Protective Ass'n. v. Patterson*, 204 F.3d 1206, 1210 (9th Cir.1999). Plaintiffs argue that the text of the County Defendants' Permit is clear, and provides that the District's mass-emissions monitoring data will be used to assess the County Defendants'

compliance with the Permit, and particularly Part 2, which prohibits “discharges from the [LA] MS4 that cause or contribute to the violation of Water Quality Standards or water quality objectives.” The County Defendants dispute this notion, and first claim that the District's mass-emissions monitoring is intended to serve only a hortatory purpose. As County Defendants state, “the mass emission monitoring program ... neither measures nor was designed to measure any individual permittee's compliance with the Permit.” This argument is clearly belied by the text of the Permit and is rejected.

The Permit establishes a “Monitoring and Reporting Program” with the stated objectives of *both* characterizing stormwater discharges *and* assessing compliance with water-quality standards. The Permit language could not be more explicit in this regard, stating that “[a]ssessing compliance with this [Permit]” is one of the “primary objectives of the Monitoring Program.” “The fact that the parties dispute a [permit's] meaning does not establish that the [permit] is ambiguous; it is only ambiguous if reasonable people could find its terms susceptible to more than one interpretation.” *Klamath Water Users Protective Ass'n*, 204 F.3d at 1210. No reasonable person could find even the slightest ambiguity in the phrase “[t]he primary objectives of the Monitoring Program include, but are not limited to: Assessing compliance with this [Permit].” Consequently, we decline to embrace the County Defendants' initial argument that “the mass-emission monitoring stations, as a matter of fact, do not assess the compliance of any permittee with the Permit....”

County Defendants' alternative argument, while more facially appealing, fares no better. Specifically, the County Defendants point to certain Permit language they claim shows that the Regional Board did not intend for the mass-emissions monitoring data to be used to establish liability for Permit violations. For instance, *1206 the County Defendants note that the Permit provides that “[e]ach permittee is responsible only for a discharge for which it is the operator.” County Defendants also cite language in Part 2 that reads: “Discharges from the [LA] MS4 of storm water, or non-storm water, *for which a Permittee is responsible* for [sic], shall not cause or contribute to a condition of nuisance.” The County Defendants read this language as precluding a finding of liability against them—or any other Permittee—without independent monitoring data establishing that discharges from a particular entity's ms4 outfalls exceeded standards.

[7] “[A] court must give effect to every word or term” in an NPDES permit “and reject none as meaningless or surplusage....” *In re Crystal Props., Ltd., L.P.*, 268 F.3d 743, 748 (9th Cir.2001) (quotations omitted); see also Restatement (Second) of Contracts § 203(a) (1981) (“[A]n interpretation which gives a reasonable, lawful, and effective meaning to all the terms is preferred to an interpretation which leaves a part unreasonable, unlawful, or of no effect.”). “Therefore, we must interpret the [Permit] in a manner that gives full meaning and effect to all of the [Permit's] provisions and avoid a construction of the [Permit] that focuses only on” a few isolated provisions. *In re Crystal Props.*, 268 F.3d at 748.

The County Defendants' interpretation of the Permit ultimately must be rejected because it would create an unreasonable result. Reading the clause that “[e]ach permittee is responsible only for a discharge for which it is the operator” to preclude use of the mass-emission monitoring data to “assess [] compliance with this [Permit]” would render the monitoring provisions of the Permit largely meaningless. Under the County Defendants' reading of the Permit, individual Permittees could discharge an unlimited amount of pollutants from the LA MS4 but never be held liable for those discharges based on the results of the mass-emissions monitoring, even though that monitoring is explicitly intended to assess whether Permittees are in compliance with Part 2's discharge limitations. We are unwilling to accept such a strained interpretation. See *Mastrobuono v. Shearson Lehman Hutton, Inc.*, 514 U.S. 52, 63, 115 S.Ct. 1212, 131 L.Ed.2d 76 (1995) (holding that courts should be guided by the “cardinal principle of contract construction: that a document should be read to give effect to all of its provisions and to render them consistent with each other”). A better reading of the Permit's putatively conflicting provisions, therefore, is the one proposed by Plaintiffs. Limiting a Permittee's responsibility to “discharge[s] for which it is the operator” applies to the appropriate *remedy* for Permit violations, not to *liability* for those violations. Indeed, Plaintiffs' reading is consistent with the remedial scheme of the Permit itself. If the LA MS4 is found to be contributing to water quality violations, each Permittee must take appropriate remedial measures with respect to its *own* discharges.¹⁷ Thus, a finding of *liability* against the County Defendants would not, as defendants argue, hold any County Defendant

responsible for discharges for which they are not “the operator.”

In sum, and contrary to the County Defendants' contentions, the language of the Permit is clear—the data collected at the Monitoring Stations is intended to determine whether the Permittees are in compliance with the Permit. If the District's *1207 monitoring data shows that the level of pollutants in federally protected water bodies exceeds those allowed under the Permit, then, as a matter of permit construction, the monitoring data conclusively demonstrate that the County Defendants are not “in compliance” with the Permit conditions. Thus, the County Defendants are liable for Permit violations.

B. Extrinsic Considerations

Although we believe the plain language of the Permit clearly contemplates that the County Defendants' monitoring data will be used to assess Permit compliance (*i.e.*, establish liability for CWA violations), we note that numerous extrinsic considerations also undercut the County Defendants' position.

First and foremost, the Clean Water Act *requires* every NPDES permittee to monitor its discharges into the navigable waters of the United States in a manner sufficient to determine whether it is in compliance with the relevant NPDES permit. 33 U.S.C. § 1342(a)(2); 40 C.F.R. § 122.44(i)(1) (“[E]ach NPDES permit shall include conditions meeting the following ... monitoring requirements ... to assure compliance with permit limitations.”). That is, an NPDES permit is unlawful if a permittee is not required to effectively monitor its permit compliance. See 40 C.F.R. § 122.26(d)(2)(i)(F) (“Permit applications for discharges from large and medium municipal storm sewers ... shall include ... monitoring procedures necessary to determine compliance and noncompliance with permit conditions....”). As previously noted, the County Defendants contend that the mass-emissions monitoring program “neither measures nor was designed to measure any individual permittee's compliance with the Permit.” But if the County Defendants are correct, the Permit would be unlawful under the CWA. We must interpret the provisions of the Permit like any other contract and reject an interpretation that would render the Permit unenforceable. See *Walsh v. Schlecht*, 429 U.S. 401, 408, 97 S.Ct. 679, 50 L.Ed.2d 641 (1977) (noting that “contracts should not be interpreted to render them illegal and unenforceable where the wording

lends itself to a logically acceptable construction that renders them legal and enforceable”); *see also Nw. Env'tl. Advocates*, 56 F.3d at 984; Restatement (Second) of Contracts § 203.

[8] Second, the County Defendants' position has been explicitly rejected by the Regional Board, the entity that issued the Permit. This is important because one of our obligations in interpreting an NPDES permit is “to determine the intent of the permitting authority....” *Piney Run Pres. Ass'n*, 268 F.3d at 270. Thus, we give significant weight to any extrinsic evidence that evinces the permitting authority's interpretation of the relevant permit. *See Nw. Env'tl. Advocates*, 56 F.3d at 985 (relying on “significant evidence from [the state permitting agency], the permit author,” to determine the proper scope of an NPDES permit).

Here, the record contains an amicus brief filed by the Regional Board in a lawsuit nearly identical to this one.¹⁸ In that suit, these same Plaintiffs sued the City of Malibu, one of the County Defendants' co-permittees, for violating the NPDES Permit at issue in this case. In its brief, the Regional Board stated its position that:

The Permit recognizes that the inter-connected nature of the system means that it may be difficult to determine exactly where [pollutants] originated *1208 within the [LA] MS4. This does not mean, however, that the Permit assumes only one permittee may be responsible. Instead, it recognizes that in such an integrated storm sewer system, one or more Permittees may have caused or contributed to violations.... Having constructed a joint sewer system that, by design, co-mingles the [Permittees'] discharges, they cannot avoid enforcement because one cannot determine the original source of pollutants in the waste stream.

[9] The Regional Board also noted that “the monitoring program that the permittees requested (and were granted) does not readily generate the permittee-by-permittee outfall data that the [County Defendants] would require as a precondition to enforcement.” As a result, the Regional Board disagreed with any construction of the Permit that would require individualized proof of a Permittees' discharges in order to establish liability. Simply put, the Regional Board indicated that it “does not agree” that the “burden [of proving Permit violations] rests upon the enforcing entity.” Although we do not defer

to the Regional Board's interpretation of the Permit, *see Orthopaedic Hosp. v. Belshe*, 103 F.3d 1491, 1495 (9th Cir.1997), its rejection of the County Defendants' position is clearly instructive.

Finally, the County Defendants' arguments run counter to the purposes of the CWA, and ignore the inherent complexity of ensuring an ms4's compliance with an NPDES permit that covers thousands of different point sources and outfalls. As we have previously recognized, “[t]he NPDES program fundamentally relies on self-monitoring.” *Sierra Club v. Union Oil Co. of Cal.*, 813 F.2d 1480, 1491 (9th Cir.1987), *vacated and remanded on other grounds*, 485 U.S. 931, 108 S.Ct. 1102, 99 L.Ed.2d 264 (1988), *and reinstated and amended by* 853 F.2d 667 (9th Cir.1988). Congress' purpose in adopting this self-monitoring mechanism was to promote straightforward enforcement of the Act. *See id.* at 1492 (noting that Congress wished to “avoid the necessity of lengthy fact finding, investigations, and negotiations at the time of enforcement. Enforcement of violations of requirements under this Act should be based on relatively narrow fact situations requiring a minimum of discretionary decision making or delay”) (quoting S.Rep. No. 92-414, 92nd Cong., 1st Sess. 64, *reprinted in* 1972 U.S.Code Cong. & Ad. News 3668, 3730).¹⁹ Or, as one treatise writer has described enforcement of the Act:

The CWA is viewed by many as the easiest of the federal environmental statutes to enforce. This is because persons regulated under the act normally must report their own compliance and noncompliance to the regulating agency. For example, holders of NPDES permits must file periodic discharge monitoring reports (or DMRs), which must contain the results of all monitoring of discharges, and must indicate where those discharges exceed permit limitations.... Thus, enforcement actions may be brought based on little, if anything, more than the DMRs and other reports submitted by the permittee itself.

Environmental Law Handbook at 357–58.

Admittedly, regulating pollution from ms4s is substantially more complicated than regulating pollution from a few defined point sources. Like the LA MS4 at issue here, municipal separate storm sewer systems often cover many square miles and comprise numerous, geographically *1209 scattered, and sometimes uncharted sources of pollution, including

streets, catch basins, gutters, man-made channels, and storm drains. Faced with the difficult task of regulating millions of storm-sewer point sources, Congress amended the CWA in 1987 to grant the EPA the express authority to create a separate permitting program for ms4s. 33 U.S.C. § 1342(p)(2), (3). In enacting these amendments, Congress recognized that for large urban areas like Los Angeles, ms4 permitting cannot be accomplished on a source-by-source basis. The amendments therefore give the EPA, or a state like California to which the EPA has delegated permitting authority, broad discretion to issue permits “on a system-wide or jurisdiction-wide basis,” 40 C.F.R. § 122.26(a)(1)(v), rather than requiring cities and counties to obtain separate permits for millions of individual stormwater discharge points. This increased flexibility is crucial in easing the burden of issuing stormwater permits for both permitting authorities and permittees.²⁰

But while otherwise more flexible than the traditional NPDES permitting system, nothing in the ms4 permitting scheme relieves permittees of the obligation to monitor their compliance with their NPDES permit in some fashion. *See* 33 U.S.C. § 1342(a)(2) (“The Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of [the permit], including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.”); 40 C.F.R. § 122.44(i)(1) (establishing that every permit “shall include” monitoring “[t]o assure compliance with the permit limitations”). Rather, EPA regulations make clear that while ms4 NPDES permits need not require monitoring of each stormwater source at the precise point of discharge, they may instead establish a monitoring scheme “sufficient to yield data which are representative of the monitored activity...” 40 C.F.R. § 122.48(b) (emphasis added). In fact, EPA regulations require permittees, like the County Defendants here, to propose a “monitoring program for representative data collection for the term of the permit that describes the location of outfalls or field screening points to be sampled (*or the location of instream stations*)” and explain “why the [chosen] location is representative...” 40 C.F.R. § 122.26(d)(2)(iii)(D) (emphases added). Here, the County Defendants did just that. County Defendants themselves chose the locations of the Monitoring Stations, locations that are downstream from a significant number of their outfalls.²¹ And, as required by law, the County Defendants chose locations that they certified were necessarily “representative” of the monitored activity (*i.e.*,

the Permittees' discharges of stormwater runoff into the navigable waters of the United States).²² Now, however, County Defendants claim *1210 that their compliance with the Permit cannot be measured using the results of the representative monitoring they themselves agreed to, that the Regional Board approved, and that the Permit itself contemplates is to be used to assess compliance with its terms. We take this opportunity to reevaluate and reject County Defendants' arguments.

CONCLUSION

Because the results of County Defendants' pollution monitoring conclusively demonstrate that pollution levels in the Los Angeles and San Gabriel Rivers are in excess of those allowed under the Permit, the County Defendants are *liable* for Permit violations as a matter of law. This case is remanded to the district court for further proceedings consistent with this opinion, including a determination of the appropriate *remedy* for the County Defendants' violations.

REVERSED and REMANDED.

*1211 APPENDICES

Appendix A

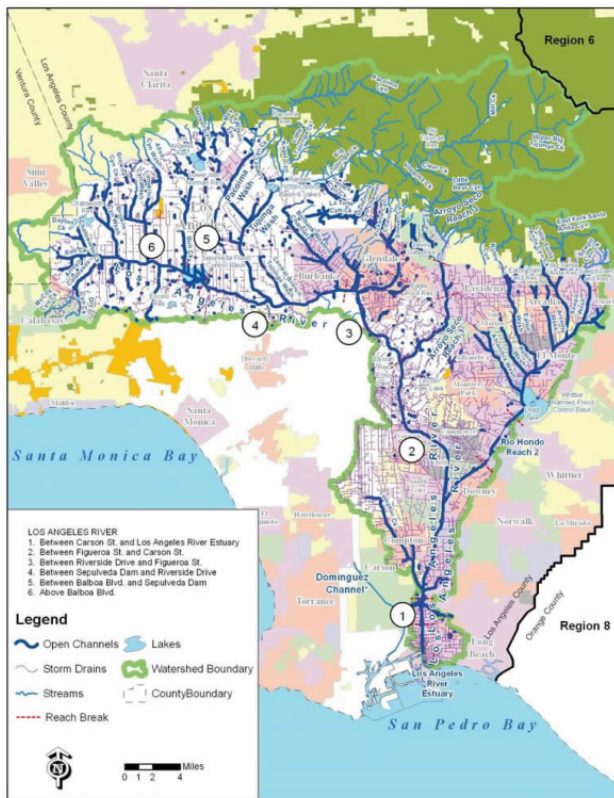


Figure C-4: Los Angeles River Watershed Management Area Flow Schematic.

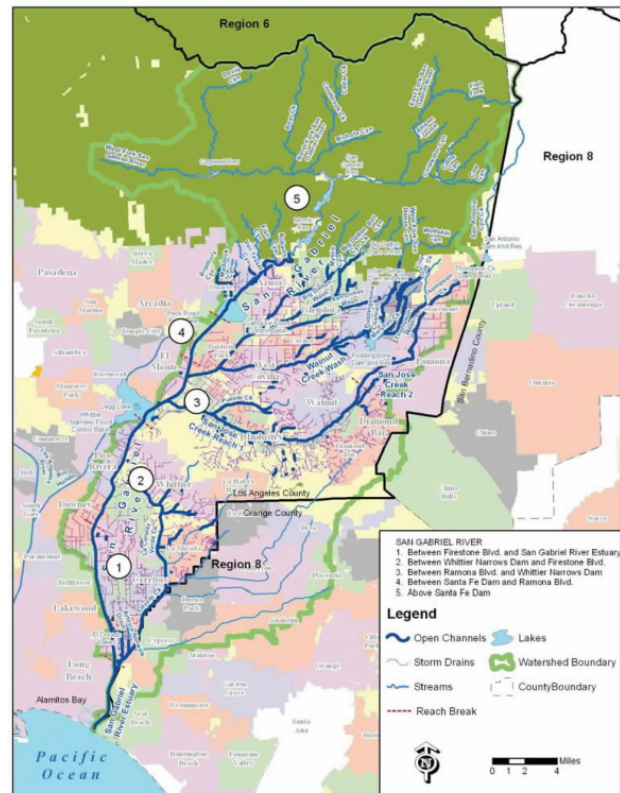


Figure C-5: San Gabriel River Watershed Management Area Flow Schematic.

Appendix B

All Citations

725 F.3d 1194, 13 Cal. Daily Op. Serv. 8623, 2013 Daily Journal D.A.R. 10,619

Footnotes

- * The Honorable [H. Russel Holland](#), Senior District Judge for the U.S. District Court for the District of Alaska, sitting by designation.
- 1 Whereas natural, vegetated soil can absorb rainwater and capture pollutants, paved surfaces and developed land can do neither. Paved facilities with particularly high volumes of motor vehicle traffic—such as parking lots, retail gasoline outlets, and fast food restaurants—are typically responsible for producing higher concentrations of pollutants in storm water runoff.
- 2 Federal Regulations define an ms4 as:
 - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
 - (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body ... having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity ...;
 - (ii) Designed or used for collecting or conveying storm water;
 - (iii) Which is not a combined sewer; and
 - (iv) Which is not part of a Publicly Owned Treatment Works....
 - [40 C.F.R. § 122.26\(b\)\(8\)](#). Unlike a sanitary sewer system, which transports municipal sewage for treatment at a wastewater facility, or a combined sewer system, which transports sewage and stormwater for treatment, an ms4 conveys only untreated stormwater. See [40 C.F.R. § 122.26\(a\)\(7\), \(b\)\(8\)](#).
- 3 Throughout this Opinion, reference is made to both “ms4” and the “LA MS4.” The former is a generic reference to an individual municipal separate storm sewer system without regard to its particular location, while the latter specifically

refers to the entire flood control and stormsewer infrastructure described *supra* that exists in Los Angeles County, and which is made up of the various interconnected ms4s that are controlled by the County, the District, and the incorporated cities within the District.

- 4 An “outfall” is defined as a “point source ... at the point where a municipal separate storm sewer discharges to waters of the United States...” 40 C.F.R. § 122.26(b)(9). It is estimated that the LA MS4 contains tens of thousands of outfalls where stormwater runoff is discharged into federally protected water bodies.
- 5 Plaintiffs originally complained about the County Defendants' discharges into four water bodies: the Los Angeles River, the San Gabriel River, the Santa Clara River, and Malibu Creek. See *Natural Res. Def. Council*, 673 F.3d at 883. On remand to this court, however, Plaintiffs only seek review of the district court's summary judgment ruling regarding the County Defendants' discharges into the Los Angeles and San Gabriel Rivers.
- 6 A point source is defined as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.” 33 U.S.C. § 1362(14). Throughout this litigation, there has been confusion regarding whether the LA MS4 is a “point source” under the CWA. See *Natural Res. Def. Council*, 673 F.3d at 898 (accepting Plaintiffs' argument that “[u]nder the Clean Water Act, the [LA] MS4 is a ‘Point Source.’”). The LA MS4 is *not* a single point source. Rather, the LA MS4 is a collection of point sources, including outfalls, that discharge into the navigable waters of the United States.
- 7 On November 8, 2012, the Regional Board issued a new NPDES permit to the County Defendants and various other permittees.
- 8 Part 2 also mandates that “[d]ischarges from the [LA] MS4 of storm water, or non-storm water, for which a Permittee is responsible for [sic], shall not cause or contribute to a condition of nuisance.”
- 9 Under California law, regional boards are required to formulate water quality plans, called “basin plans,” which designate the beneficial uses of protected water bodies within the boards' jurisdiction, establish water quality objectives for those water bodies, and establish a program for implementing the basin plan. See *City of Burbank v. State Water Res. Control Bd.*, 35 Cal.4th 613, 26 Cal.Rptr.3d 304, 108 P.3d 862, 865 (2005) (citing Cal. Water Code § 13050(j)).
- 10 The Permit defines the SQMP as “the Los Angeles Countywide Stormwater Quality Management Program, which includes descriptions of programs, collectively developed by the Permittees in accordance with the provisions of the NPDES permit, to comply with applicable federal and state law....”
- 11 The District publishes these “Stormwater Monitoring Reports” on the internet at: http://ladpw.org/wmd/NPDES/report_directory.cfm. (last accessed August 1, 2013).
- 12 In a declaration submitted to the district court, the County Defendants described both Monitoring Stations as being located “in a portion of the District's flood control channel.” See also “Section Two: Site Descriptions,” Los Angeles Cnty. Dept. of Pub. Works, available at http://dpw.lacounty.gov/wmd/npdes/9899_report/SiteDesc.pdf (last accessed August 1, 2013). Thus, it appears that the pertinent river segments are part of *both* the LA MS4 itself *and* “the waters of the United States” that the CWA protects. But regardless of whether the mass-emissions monitoring stations are *also* part of the LA MS4, there is no dispute that the mass-emissions monitoring stations are located *within* the Los Angeles and San Gabriel Rivers, downstream of a significant number of the County Defendants' LA MS4 outfalls. We misconstrued some of the data before us when we previously held otherwise. See *Natural Res. Def. Council*, 673 F.3d at 899 (“As a matter of law and fact, the [LA] MS4 is distinct from the two navigable rivers; the [LA] MS4 is an intra-state man-made construction—not a naturally occurring Watershed River”); see also 53 Fed.Reg. 49,416, 49,453 (Dec. 7, 1988) (EPA observes that “[i]n many situations, waters of the United States that receive discharges from municipal storm sewers can be mistakenly considered to be part of the storm sewer system.”).
- 13 The CWA requires plaintiffs to provide 60 days notice to an alleged violator, the State in which the violation is alleged to be occurring, and the EPA, before filing suit. 33 U.S.C. § 1365(b)(1)(A).
- 14 See *L.A. Cnty. Flood Control Dist.*, 133 S.Ct. at 713–14 (“Under the permit's terms, the NRDC and Baykeeper maintain, the exceedances detected at instream monitoring stations are by themselves sufficient to establish the District's liability under the CWA for its upstream discharges. This argument failed below. It is not embraced within, or even touched by, the narrow question on which we granted certiorari. We therefore do not address, and indicate no opinion on, the issue NRDC and Baykeeper seek to substitute for the question we took up for review.”).
- 15 See also *Piney Run Pres. Ass'n.*, 268 F.3d at 269–70; *Am. Canoe Ass'n., Inc. v. D.C. Water & Sewer Auth.*, 306 F.Supp.2d 30, 42 (D.D.C.2004).
- 16 The question before us is not whether the Clean Water Act mandates any particular result. An NPDES permitting authority has wide discretion concerning the terms of a permit. It could, for example, lawfully write an ms4 permit that provides

that all permittees will share liability in some ratio for any measured exceedance of applicable pollutant limits. Or, as a further example, a permitting authority could lawfully write a permit providing that only the co-permittee(s) whose specific discharges are connected to a particular pollutant exceedance may be held liable for the permit violation. See [33 U.S.C. § 1342\(a\)\(2\)](#) (“The Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of [[33 U.S.C. § 1342\(a\)\(1\)](#)], including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.”).

- 17 The relevant Permit provision states: “Each Permittee is required to comply with the requirements of this Order applicable to discharges within its boundaries ... and not for the implementation of the provisions applicable to the Principal Permittee or other Permittees.”
- 18 *Santa Monica Baykeeper, et al. v. City of Malibu*, No. CV–08–01465 (AHM) (C.D.Cal. Mar. 3, 2008).
- 19 See also [44 Fed.Reg. 32,854, 32,863 \(June 7, 1979\)](#) (“Congress intended that prosecution for permit violations be swift and simple.”).
- 20 See [55 Fed.Reg. 47,990, 48,046 \(Nov. 16, 1990\)](#) (noting that issuing individual permits to cover all ms4 discharges to the waters of the United States is “unmanageable”); *id.* at [48,049–48,050](#) (“Given the complex, variable nature of storm water discharges from municipal systems, EPA favors a permit scheme where the ... [p]ermit writers have the necessary flexibility to develop monitoring requirements that more accurately reflect the true nature of highly variable and complex discharges.”).
- 21 “Q: Does the County’s ms4 outlet to any tributaries of the Los Angeles River? A: Yes. Q: Does it outlet to tributaries of the Los Angeles River upstream of the mass emissions station? A: Yes.... Q: Does [the County’s ms4] outlet to the San Gabriel River upstream of the mass emissions station? A: Yes.” Pestrella Dep. 697:7–698:6, June 2, 2009.
- 22 “Q: Who selected the location of those stations, do you know? A: The County selected those locations for a particular purpose. And the purpose was [to be] far enough away from tidal influence *so that you would be characterizing the stormwater runoff as opposed to ocean waters*. Q: And the locations were then approved by Regional Board staff; is that correct? A: Correct.” Wamikannu Dep. 130:13–130:19, July 1, 2009 (emphasis added).

ATTACHMENT

6

H

Court of Appeal, Third District, California.
Kathleen CONNELL, as Controller, etc., et al.,
Petitioners,

v.

SUPERIOR COURT of Sacramento County,
Respondent;
SANTA MARGARITA WATER DISTRICT et al.,
Real Parties in Interest.
No. C024295.

Nov. 20, 1997.

Review Denied Feb. 25, 1998.

Local water districts filed petitions for writ of mandate to enforce state Board of Control decision which found state regulation amendment increasing level of purity required for use of reclaimed wastewater in irrigation to constitute reimbursable state mandate. The Superior Court, Sacramento County, James Timothy Ford, J., granted petitions. State Controller and State Treasurer appealed. The Court of Appeal, Sims, J., held that: (1) although judgment was interlocutory, Court would exercise its discretion to treat appeal as writ petition in interest of justice and judicial economy; (2) even assuming elements of administrative collateral estoppel had been met, public-interest exception applied to allow review of question of law of whether recycled wastewater regulation constituted reimbursable state mandate; (3) water district statute on its face authorized local water districts to levy fees sufficient to pay costs of regulation amendment, which thus precluded entitlement of local water districts to reimbursement; and (4) statute precluding reimbursement was triggered by districts' power or right to levy fees sufficient to cover costs of state-mandated program regardless of their practical ability to do so.

Peremptory writ of mandate issued.

****232 *385** Daniel E. Lungren, Attorney General, Floyd D. Shimomura, Senior Assistant Attorney General, Linda A. Cabatic and Susan R. Oie, Deputy Attorneys General, for Petitioners.

No appearance for Respondent.

James A. Curtis, Nevada City, for Real Parties in Interest.

SIMS, Associate Justice.

This case involves a dispute as to whether a statewide regulatory amendment, increasing the level of purity required when reclaimed wastewater is used for certain types of irrigation, constitutes a state-mandated program for which water districts are entitled to reimbursement from the state. (Cal. Const., art. XIII B, § 6 [hereafter, ****233**section 6]; [FN1] Gov.Code, § 17500 et seq.; former Rev. & Tax.Code, § 2201 et seq.) The State Controller and State Treasurer appeal from a trial court judgment granting ***386** petitions for writ of mandate brought by Santa Margarita Water District (SMWD), Marin Municipal Water District, Irvine Ranch Water District and Santa Clara Valley Water District (the Districts), seeking to enforce a state Board of Control (the Board) decision which found the regulatory amendment constituted a reimbursable state mandate. [FN2] Appellants contend the trial court erred because (1) the amendment did not constitute a new program or higher level of service in an existing program; (2) the Districts' claim was abolished when the statutory basis for their claim-- former Revenue and Taxation Code section 2207--was repealed before their rights were reduced to final judgment, and (3) the Districts' authority to levy fees to pay for the increased costs defeats their claim of a reimbursable mandate. Appellants also challenge the trial court's determination that they were collaterally estopped from challenging the Board of Control's decision (finding a reimbursable state mandate) by their failure timely to seek judicial review of the administrative decision. We shall conclude the Districts' authority to levy fees defeats their claim of a reimbursable mandate, and appellants are not collaterally estopped from raising this matter. We therefore need not address the other contentions. Treating this appeal from a nonappealable judgment as an extraordinary writ petition, we shall direct the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions.

FN1. Section 6 provides: "Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service, except that the Legislature may, but need not, provide such subvention of funds for the following mandates: [¶] (a) Legislative mandates requested by the local agency affected; [¶] (b) Legislation defining a new crime or changing an existing definition of a crime; or [¶] (c) Legislative mandates enacted prior to January 1, 1975, or executive orders or regulations initially implementing legislation enacted prior to January 1, 1975."

FN2. The trial court first held proceedings in the matter of the petition filed by Santa Margarita Water District. The other three water districts had filed petitions, which were consolidated and awaiting hearing. The parties to the consolidated case filed a stipulation indicating they did not wish to relitigate the entitlement issues already decided by Judge Ford in the Santa Margarita Water District case, and they stipulated to assignment of their cases to Judge Ford pursuant to California Rules of Court, rule 213 (assignment to one judge for all or limited purposes), for determination of amounts as to each district. The judgment expressly covers the petitions of all four districts.

FACTUAL AND PROCEDURAL BACKGROUND

In 1975, the State Department of Health Services (DHS) adopted regulations (Cal.Code Regs., tit. 22, §§ 60301-60357) implementing Water Code section 13521, which provides: "The State Department of Health Services shall establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health." Section 60313 [FN3] of the California Code of Regulations prescribed the level of purity required for reclaimed water to be used for landscape irrigation.

FN3. California Code of Regulations section 60313, initially provided: "Landscape Irrigation. Reclaimed water used for the irrigation of golf courses, cemeteries, lawns, parks, playgrounds, freeway landscapes, and landscapes in other areas where the public has access shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if at some location in the treatment process the median number of coliform organisms does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed." (Former section 60313 of Cal.Code Regs., tit. 22, Register 75. No. 14, Apr. 5, 1975.)

*387 In May 1976, SMWD adopted a plan to develop a wastewater reclamation system. In August 1976, SMWD filed an application with the responsible regional water quality control board (Water Control Board) for a permit to discharge wastewater from the proposed reclamation system. SMWD also planned to provide reclaimed water for irrigation, potentially to 2,173 acres of land.

**234 In February 1977, the Water Control Board issued SMWD a permit for operation of a reclamation system--the Oso Creek facility. The permit required SMWD to comply with all applicable wastewater reclamation regulations then in effect.

In late 1977, SMWD learned DHS might be considering modifications to the Title 22 regulations.

In August 1978, SMWD completed construction of the Oso Creek facility, at a cost of \$17 million.

In September 1978, DHS amended the regulations. The amendment to California Code of Regulations section 60313 [FN4] increased the level of purity required before reclaimed wastewater could be used for the irrigation of parks, playgrounds and school yards. It is this amendment which allegedly constituted a state-mandated cost. SMWD modified its facility to comply with the amended regulations, completing the modifications in 1983.

FN4. Section 60313 of California Code of

(Cite as: 59 Cal.App.4th 382, 69 Cal.Rptr.2d 231)

Regulations, title 22, as amended, provides: "(a) Reclaimed water used for the irrigation of golf courses, cemeteries, freeway landscapes, and landscapes in other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 240 per 100 milliliters in any two consecutive samples.

"(b) Reclaimed water used for the irrigation of parks, playgrounds, schoolyards, and other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized, coagulated, clarified, filtered wastewater or a wastewater treated by a sequence of unit processes that will assure an equivalent degree of treatment and reliability. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 23 per 100 milliliters in any sample."

388** On October 1, 1982, SMWD filed a "test claim" [FN5] with the Board, alleging the regulatory amendment relating to the use of reclaimed wastewater constituted a new program or higher level of service. The test claim was made pursuant to former Revenue and Taxation Code section 2231, [FN6] which required reimbursement to local agencies for costs mandated by the state (see now Gov.Code, § 17561 [FN7]), and former Revenue and Taxation Code section 2207, subdivisions (a) and (b) [FN8] defining "costs mandated by the *235** state." (See now Gov.Code, § 17514. [FN9]) The test claim also cited section 6 (fn. 1, ante).

FN5. At the time in question, "test claim" meant "the first claim filed with the State Board of Control alleging that a particular

statute or executive order imposes a mandated cost on such local agency or school district." (Former Rev. & Tax.Code, § 2218, Stats.1980, ch. 1256, § 7, p. 4249.) "Estimated claims" and "reimbursement claims" were used to make specific demand against an appropriation made for the purpose of paying such claims. (*Ibid.*)

A similar structure, distinguishing between "test claims" and various "reimbursement claims" or "entitlement claims" continues presently in Government Code sections 17521-17522.

At the time in question, the statutory procedure provided that if the Board found a mandate, it did not determine the amount to be reimbursed to the test claimant; rather, the Board then adopted a statewide cost estimate which was reported to the Legislature. (Stats.1980, ch. 1256; Stats.1982, ch. 734.) It was the State Controller who determined specific amounts to be reimbursed, after the Legislature appropriated funds for that purpose. (*Ibid.*)

FN6. Former Revenue and Taxation Code section 2231 provided in part: "(a) The state shall reimburse each local agency for all 'costs mandated by the state,' as defined in Section 2207...." (Stats.1982, ch. 1586, § 3, p. 6264.)

FN7. Government Code section 17561 provides in part: "(a) The state shall reimburse each local agency and school district for all 'costs mandated by the state,' as defined in Section 17514...."

FN8. Former Revenue and Taxation Code section 2207 provided in part: " 'Costs mandated by the state' means any increased costs which a local agency is required to incur as a result of the following: [¶] (a) Any law enacted after January 1, 1973, which mandates a new program or an increased level of service of an existing program; [¶] (b) Any executive order issued after January 1, 1973, which mandates a new program...." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.)

The test claim did *not* invoke other subdivisions of section 2207, concerning

"(c) Any executive order issued after January 1, 1973, which (i) implements or interprets a state statute and (ii), by such implementation or interpretation, increases program levels above the levels required prior to January 1, 1973. [¶] ... [¶] (h) Any statute enacted after January 1, 1973, or executive order issued after January 1, 1973, which adds new requirements to an existing optional program or service and thereby increases the cost of such program or service if the local agencies have no reasonable alternatives other than to continue the optional program." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.) Since these subdivisions were not invoked, we have no need to consider them.

FN9. Government Code section 17514 provides: " 'Costs mandated by the state' means any increased costs which a local agency or school district is required to incur after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of Section 6...."

***389** On July 28, 1983, the Board determined the amended regulations imposed state mandated costs. In so doing, the Board rejected the position of state agencies seeking denial of the claim on the ground that local agencies are not mandated to use reclaimed water and because, if local agencies do choose to use it, they can recover the cost in charges made to purchasers of the water.

On January 19, 1984, the Board adopted "Parameters and Guidelines" establishing criteria for payment of claims to water districts pursuant to this mandate. (Former Rev. & Tax.Code, § 2253.2, Stats.1982, ch. 734, § 10; Gov.Code, § 17557.)

On May 31, 1984, the Board amended its Parameters and Guidelines to provide for reimbursement of SMWD's cost of preparing and presenting the test claim.

In June 1984, the Board, pursuant to former Revenue

and Taxation Code section 2255, [FN10] submitted to the Legislature a statewide cost estimate of \$14 million for this mandate. The Legislature did not appropriate any funds for the mandate in 1984.

FN10. Former Revenue and Taxation Code section 2255 provided: "At least twice each calendar year the Board of Control shall report to the Legislature on the number of mandates it has found and the estimated statewide costs of such mandates. Such report shall identify the statewide costs estimated for each such mandate and the reasons for recommending reimbursement.... Immediately on receipt of such report a local governmental claims bill shall be introduced in the Legislature. The local government claims bill, at the time of its introduction, shall provide for an appropriation sufficient to pay the estimated costs of such mandates, pursuant to the provisions of this article." (Stats.1980, ch. 1256, § 20, p. 4255.)

The current provision is contained in Government Code section 17600, which provides: "At least twice each calendar year the commission shall report to the Legislature on the number of mandates it has found pursuant to Article 1 (commencing with Section 17550) and the estimated statewide costs of these mandates. This report shall identify the statewide costs estimated for each mandate and the reasons for recommending reimbursement."

In 1985, the Legislature included an appropriation of almost \$14 million for this state-mandated cost in the budget, but the Governor vetoed the appropriation.

In 1986, a bill including \$945,000 for the subject mandate was introduced, but the bill was not enacted.

On January 27, 1987, SMWD filed in the trial court a petition for writ of mandate pursuant to Code of Civil Procedure section 1085. The petition sought an order directing (1) the State Controller to issue a warrant "to pay the State's obligation to SMWD for its 'costs mandated by the state' " and (2) the State Treasurer to pay the Controller's warrant.

***390** At a hearing, the trial court upheld the Board's decision that the amended regulations required a higher level of service and held the doctrines of waiver and collateral estoppel applied to that decision, such that the state, by failing to challenge the Board's decision within the three-year statute of limitations, was barred from challenging it now. However, the trial court did allow the state to argue that the amended regulations did not come within the definition of "program," as that word had recently been defined in *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 56, 233 Cal.Rptr. 38, 729 P.2d 202.

The trial court recognized that, since there was no appropriation for this mandate in the state budget, the court could not grant the relief sought by SMWD (an order directing the Controller to issue a warrant and the Treasurer to pay it) unless the court found ****236** the existence of funds reasonably available in the state budget which could be tapped for this purpose. The trial court stated it was not prepared to find the existence of funds reasonably available without a full evidentiary hearing. Rather than use the Board's statewide estimate, the court believed it needed to know the amount to which each water district would be entitled before it could determine whether there were funds reasonably available in the budget. The trial court ruled the exact amount of money to be reimbursed to the Districts had never been determined and referred the matter to a referee to make that determination.

In February 1989, a court-appointed referee began evidentiary hearings to determine the amount of reimbursement for each water district.

In 1989, the Legislature repealed former Revenue and Taxation Code section 2207 (fn. 8, *ante*), defining "costs mandated by the state." (Stats.1989, ch. 589, § 7.)

On July 29, 1994, appellants filed in the trial court a motion for judgment on the pleadings/motion to dismiss, arguing repeal of former Revenue and Taxation Code section 2207 destroyed any right to reimbursement and divested the court of jurisdiction to proceed. The motion also revisited the issue presented to and rejected by the Board, that the water districts' authority to levy fees defeated a finding that the costs were reimbursable.

In February 1995, the trial court issued its ruling denying appellants' motion for judgment on the pleadings and for dismissal. The court in its minute order determined repeal of former Revenue and Taxation Code section 2207 in 1989 had not destroyed the Districts' right to reimbursement pursuant to the Board's decision, because the Board's decision was reduced to "final judgment" before the statutory repeal. The court said the Board's ***391** decision on July 28, 1983, became final in July 1986, when the applicable three-year statute of limitations for seeking judicial review lapsed. The Board's decision therefore conclusively established the Districts' right to reimbursement, and appellants were collaterally estopped from challenging the Board's decision. The court further said no discernible injustice or public interest precluded this application of collateral estoppel; rather, justice would be furthered by allowing the Districts to enforce their right to reimbursement as established by the Board.

The trial court further said the statutory authority of the Districts to levy service charges and assessments (Former Rev. & Tax.Code, § 2253.2, subd. (b)(4), [FN11] Stats.1982, ch. 734, § 10, p. 2916; Gov.Code, § 17556 [FN12]) did not bar reimbursement for state-mandated costs. "When the Board determined that the 1978 amendment of the regulations establishing reclamation criteria imposed reimbursable state-mandated costs, it rejected the argument of the State Departments of Health Services and Finance that the costs were not reimbursable pursuant to former Revenue and Taxation Code section 2253(b)(4) and implicitly determined, in accordance with the presentation of [Santa Margarita Water District] that [the Districts] did not have sufficient authority to levy service charges and assessments to pay for the increased level of service mandated by the 1978 regulatory amendment. This implicit determination, resolving a mixture of legal and factual issues, became final and binding on respondents under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

FN11. At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part: "(b) The Board of Control shall not find a

(Cite as: 59 Cal.App.4th 382, 69 Cal.Rptr.2d 231)

reimbursable mandate ... in any claim submitted by a local agency ... if, after a hearing, the board finds that: ... [¶] (4) The local agency ... has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." (Stats.1982, ch. 734, § 10, p. 2916.)

FN12. Government Code section 17556 provides in part: "The [Commission on State Mandates (formerly the Board of Control)] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service."

****237** At a further hearing concerning the amount owed to each water district, the trial court stated it had erred in referring the matter to a referee and should have rendered a judgment directing the Controller to determine the amounts owed.

On June 3, 1996, the trial court entered a judgment stating (1) the Board's decision was final at the time the petitions were filed in the trial court; (2) ***392** the state mandate is a program for which reimbursement is due under *County of Los Angeles v. State of California, supra*, 43 Cal.3d 46, 233 Cal.Rptr. 38, 729 P.2d 202; (3) the court having concluded it was inappropriate for the court to determine amounts of reimbursement, the Controller was directed to make that determination. The court directed issuance of a writ commanding the Controller to determine the amounts due to the Districts.

Appellants appeal from the judgment.

The Districts filed a cross-appeal, but we dismissed the cross-appeal pursuant to stipulation of the parties.

DISCUSSION

I. *Appealability*

[1] Because the petition sought an order directing the

Controller to issue a warrant and the Treasurer to pay a warrant but the judgment merely ordered the Controller to determine amounts without disposing of those matters, and because the record reflected the trial court's recognition that it could not order issuance or payment of warrants unless it determined appropriated funds for such expenditures were reasonably available in the state budget [FN13] (*Carmel Valley Fire Protection Dist. v. State of California* (1987) 190 Cal.App.3d 521, 538-541, 234 Cal.Rptr. 795)--a determination requiring an evidentiary hearing which was not held--we requested supplemental briefing on the question whether the judgment was a final appealable judgment, as opposed to an interlocutory judgment.

FN13. The petition for writ of mandate alleged there was a continuously appropriated State Mandates Claims Fund upon which the Legislature had placed restrictions which on their face made the fund inapplicable to the mandate at issue in this case. The petition further alleged these restrictions were unconstitutional, such that upon a judicial declaration of their unconstitutionality, there would exist funds reasonably available to pay SMWD. The trial court made no ruling on these matters. In this appeal, we need not and do not decide the propriety of the remedy sought by the Districts.

An appealable judgment or order is a jurisdictional prerequisite to an appeal. (Code Civ. Proc., § 904.1; 9 Witkin, Cal. Procedure (4th ed. 1997) Appeal, §§ 13-14, pp. 72-73.)

[2] An interlocutory judgment is not appealable; generally, a judgment is interlocutory if anything further in the nature of judicial action on the part of the trial court is essential to a final determination of the rights of the parties. (*Lyon v. Goss* (1942) 19 Cal.2d 659, 669-670, 123 P.2d 11.)

In their supplemental briefs, both sides maintain the judgment is a final appealable judgment but for different reasons. Both sides are wrong.

***393** Appellants assert the judgment is final because nothing further remains to be done by the trial court. According to appellants, the Controller, after

determining what amounts are due, is supposed to submit that amount to the Legislature to appropriate the funds (though the judgment contains no such direction). Appellants assert that, if the Legislature does not appropriate the funds, the Districts' remedy would be to file a new action in the Superior Court to enforce the court's prior order, and to compel payment out of funds already appropriated and reasonably available for the expenditures. Appellants assert it is thus premature to consider whether appropriated funds are reasonably available to pay any reimbursement due.

The Districts' supplemental brief, while agreeing the judgment is a final appealable judgment, disputes appellants' view of what happens after the Controller determines the amounts. The Districts maintain the trial court intended for appellants to pay the amounts determined by the Controller, despite the judgment's failure so to state. The Districts claim the unresolved factual question of the existence of available appropriated **238 funds in the budget is merely "an administrative detail" which need not be addressed by the court except in a proceeding to enforce the judgment in the event appellants refuse to pay.

Both sides are wrong. Nothing in the judgment requires the Controller to submit an appropriations bill to the Legislature, and appellants cite no authority that would require such a procedure--which would duplicate steps previously undertaken in this case without success. Nor does anything in the judgment call for issuance or payment of warrants. *Carmel Valley, supra*, 190 Cal.App.3d 521, 234 Cal.Rptr. 795--a case discussed in the trial court and on appeal--recognized that a court violates the separation of powers doctrine if it purports to compel the Legislature to appropriate funds, but no such violation occurs if the court orders payment from an existing appropriation. (*Id.* at pp. 538-539, 234 Cal.Rptr. 795.) Thus, the Districts' view of this matter as an administrative detail for a later postjudgment enforcement proceeding is unsupported.

We recognize this litigation arises from a "test claim," which merely determines whether a state-mandated cost exists. (See fn. 5, *ante.*) Perhaps no issue of payment should arise at all at the test claim stage, though neither side so argues.

In any event, the judgment plainly leaves matters undecided.

We conclude the judgment is interlocutory and therefore not appealable.

[3] Nevertheless, on our own motion, we shall exercise our discretion to treat the appeal as a writ petition and shall grant review on that basis. *394(*Morehart v. County of Santa Barbara* (1994) 7 Cal.4th 725, 743-744, 29 Cal.Rptr.2d 804, 872 P.2d 143 [treating appeal as writ petition is authorized means for obtaining review of interlocutory judgments].) We shall exercise our discretion to treat the appeal as a writ petition in the interest of justice and judicial economy, because the merits of the dispositive issues have been fully briefed, both sides urge review, and the judgment compels the Controller to engage in complex factfinding determinations which may be moot if the trial court erred on the merits of the mandate issues. Given the difficulties in discerning how the former statutory process of test claims was supposed to work in practice, we believe the interests of justice and judicial economy are best served by reviewing the judgment rather than dismissing the appeal.

We stress, however, that our review is limited to contentions raised in the briefs--which do not raise issues of the propriety of the remedy sought by the Districts. We express no view on whether the remedy sought by the Districts was an available or appropriate remedy.

II. Standard of Review

[4][5] In reviewing the trial court's ruling on a writ of mandate, the appellate court is ordinarily confined to an inquiry as to whether the findings and judgment of the trial court are supported by substantial evidence. (*Evans v. Unemployment Ins. Appeals Bd.* (1985) 39 Cal.3d 398, 407, 216 Cal.Rptr. 782, 703 P.2d 122.) However, where the facts are undisputed and the issues present questions of law, the appellate court is not bound by the trial court's decision but may make its own determination. (*Ibid.*)

III. Collateral Estoppel

We first address the trial court's determination that appellants were collaterally estopped from challenging the Board's determination of state-mandated cost (except for the ability to address the effect of a new Supreme Court case defining "program"). The trial court stated the Board's decision became final for collateral estoppel purposes in July 1986, when the statute of limitations for judicial review expired.

Appellants contend the trial court erred in applying collateral estoppel, because there was no "final judgment" for collateral estoppel purposes, since the amount of reimbursement had yet to be determined.

We conclude it is not necessary to decide the parties' dispute as to whether the requirements of administrative collateral estoppel are met, because even assuming the elements are met, the doctrine of collateral ****239** estoppel should be disregarded pursuant to the public interest exception.

***395** Thus, our Supreme Court declined to apply collateral estoppel in a state-mandated costs case in *City of Sacramento v. State of California* [*Sacramento II*] (1990) 50 Cal.3d 51, 64-65, 266 Cal.Rptr. 139, 785 P.2d 522. There, a city and a county filed claims with the Board seeking subvention of costs imposed by a statute (Stats.1978, ch. 2, p. 6 et seq. referred to in *Sacramento II* as "chapter 2/78") which extended mandatory coverage under the state unemployment insurance law to include state and local governments. The Board found there was no state-mandated program and denied the claims. On mandamus, the trial court overruled the Board and found the costs reimbursable. We affirmed the trial court in a published opinion. (*City of Sacramento v. State of California* [*Sacramento I*] (1984) 156 Cal.App.3d 182, 203 Cal.Rptr. 258.) On remand, the Board determined the amounts due on the claims, but the Legislature refused to appropriate the necessary funds. The city filed a class action seeking among other things payment of the state-mandated costs. The trial court granted summary judgment for the state on the grounds the statute did not impose state-mandated costs. The Supreme Court upheld the trial court's decision.

The Supreme Court in *Sacramento II* rejected the local agencies' argument that the state was

collaterally estopped from relitigating the issue whether a state-mandated cost existed, because *Sacramento I* "finally" decided the matter. (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.) The Supreme Court said: "Generally, collateral estoppel bars the party to a prior action, or one in privity with him, from relitigating issues finally decided against him in the earlier action. [Citation.] '... But when the issue is a question of law rather than of fact, the prior determination is not conclusive either if injustice would result or if the public interest requires that relitigation not be foreclosed....' [Citation.]

"Even if the formal prerequisites for collateral estoppel are present here, the public-interest exception governs. Whether chapter 2/78 costs are reimbursable under article XIII B and parallel statutes constitutes a pure question of law. The *state* was the losing party in *Sacramento I*, and also the only entity legally affected by that decision. Thus, strict application of collateral estoppel would foreclose any reexamination of the holding of that case. The state would remain bound, and no other person would have occasion to challenge the precedent.

"Yet the consequences of any error transcend those which would apply to mere private parties. If the result of *Sacramento I* is wrong but unimpeachable, taxpayers statewide will suffer unjustly the consequences of the state's continuing obligation to fund the chapter 2/78 costs of local agencies...." (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

***396** The Supreme Court also rejected the argument that res judicata applied. "Of course, res judicata and the rule of final judgments bar us from disturbing individual claims or causes of action, on behalf of specific agencies, which have been finally adjudicated and are no longer subject to review. [Citations.] However, the issues presented in the current action are not limited to the validity of any such finally adjudicated individual claims. Rather, they encompass the question of defendants' subvention obligations *in general* under chapter 2/78." (*Sacramento II, supra*, 50 Cal.3d at p. 65, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

[6] If this court's opinion finding a reimbursable mandate in *Sacramento I* did not constitute a final

adjudication precluding further consideration of the matter, a fortiori the Board's decision in the instant case does not constitute a final adjudication precluding further consideration. Thus, here, as in *Sacramento II*, the issues presented are not limited to the validity of any finally adjudicated individual claim, but encompass the question of subvention obligations in general under the regulatory amendment of wastewater purification standards. If the Board's decision is wrong but unimpeachable, taxpayers statewide would suffer unjustly the consequences of a continuing obligation to fund the costs of local water districts. We reject the Districts' argument that no public interest **240 exists in this case because only a few local entities are involved.

The Districts suggest application of the public interest exception to collateral estoppel would nullify the legislative intent to avoid multiple proceedings by creating a comprehensive and exclusive procedure for handling state mandated costs issues in the administrative forum. (E.g., Gov.Code, § 17500. [FN14]) However, we are bound by Supreme Court authority applying the public interest exception in a state-mandated costs case. *397(*Auto Equity Sales, Inc. v. Superior Court* (1962) 57 Cal.2d 450, 20 Cal.Rptr. 321, 369 P.2d 937.) Moreover, contrary to the Districts' implication, the administrative decision is not the final word; the statutory scheme authorizes judicial review of the administrative decision. (Gov.Code, § 17559; former Rev. & Tax.Code, § 2253.5, Stats.1977, ch. 1135, § 12, p. 3650.) Additionally, the instant judicial proceeding was initiated by the Districts, not by appellants. Thus, in this case application of the public interest exception to collateral estoppel is not creating multiple proceedings.

FN14. Government Code section 17500 provides in part: "The Legislature finds and declares that the existing system for reimbursing local agencies ... for the costs of state-mandated local programs has not provided for the effective determination of the state's responsibilities under Section 6.... The Legislature finds and declares that the failure of the existing process to adequately and consistently resolve the complex legal questions involved in the determination of state-mandated costs has led to an increasing reliance by local agencies and school

districts on the judiciary and, therefore, in order to relieve unnecessary congestion of the judicial system, it is necessary to create a mechanism which is capable of rendering sound quasi-judicial decisions and providing an effective means of resolving disputes over the existence of state-mandated local programs. [¶] It is the intent of the Legislature in enacting this part to provide for the implementation of Section 6 ... and to consolidate the procedures for reimbursement of statutes specified in the Revenue and Taxation Code with those identified in the Constitution. Further, the Legislature intends that the Commission on State Mandates, as a quasi-judicial body, will act in a deliberative manner in accordance with the requirements of Section 6...."

In light of the Supreme Court's decision in *Sacramento II*, we disregard earlier authority of an intermediate appellate court which applied administrative collateral estoppel to a question of law in a state-mandated costs case without express discussion of the public interest exception. (*Carmel Valley, supra*, 190 Cal.App.3d at p. 536, 234 Cal.Rptr. 795.)

We conclude that, insofar as appellants' contentions present questions of law, the public interest exception to administrative collateral estoppel governs, and we shall therefore address the legal arguments raised in appellants' brief.

IV. Authority To Levy Fees

Appellants contend that, even if the regulatory amendment is a new program for state mandated costs purposes, the water districts' authority to levy fees defeats a determination that the costs are reimbursable. We agree.

At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part:

"(b) The Board of Control shall not find a reimbursable mandate, pursuant to either Section 2250 of this code or to Section 905.2 of the Government Code, in any claim submitted by a local

agency or school district, pursuant to subdivision (a) of Section 2218, if, after a hearing, the board finds that:

"....

"(4) The local agency or school district has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." [FN15] (Stats.1982, ch. 734, § 10, p. 2917; Stats.1980, ch. 1256, § 15, pp. 4253-4254.)

FN15. This case presents no issue concerning any distinction between "service charges, fees or assessment," as used in the statute. The parties on appeal frame the issue in terms of the authority to levy "fees." We adopt their usage for the sake of simplicity.

***398** The same provision is currently contained in Government Code section 17556. [FN16]

FN16. Government Code section 17556 provides in part: "The commission [formerly the Board] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district, if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service...."

****241** The facial constitutionality of this provision was upheld in *County of Fresno v. State of California* (1991) 53 Cal.3d 482, 280 Cal.Rptr. 92, 808 P.2d 235. The *Fresno* court rejected an argument that the statute was facially unconstitutional as conflicting with section 6 (fn. 1, *ante*), which contains no exclusion of reimbursement where the local agency has authority to levy fees. Section 6 requires subvention only when the costs in question can be recovered solely from tax revenues. (*Id.* at p. 487, 280 Cal.Rptr. 92, 808 P.2d 235.) Government Code section 17556, subdivision (d), "effectively construes the term 'costs' in the constitutional provision as excluding expenses that are recoverable from sources other than taxes. Such a construction is altogether sound." (*County of Fresno v. State of California, supra*, 53 Cal.3d at p. 487, 280 Cal.Rptr. 92, 808

P.2d 235.)

Here, appellants contend that, at all pertinent times, the water districts have had *authority* to levy fees to cover the costs at issue in this case. They cite provisions such as Water Code section 35470, which provides: "Any district formed on or after July 30, 1917, may, in lieu in whole or in part of raising money for district purposes by assessment, make water available to the holders of title to land or the occupants thereon, and may fix and collect charges therefor. The charges may include standby charges to holders of title to land to which water may be made available, whether the water is actually used or not. The charges may vary in different months and in different localities of the district to correspond to the cost and value of the service, and the district may use so much of the proceeds of the charges as may be necessary to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose."

[7] We agree this statute on its face authorizes the Districts to levy fees sufficient to pay the costs involved with the regulatory amendment. We thus shall conclude the Board erred in finding a right to reimbursement despite this authority to levy fees, and we shall conclude appellants are not collaterally estopped from pressing this point.

The Districts do not dispute they have authority to levy fees for the costs involved in this case. Instead they argue the real issue is whether they had ***399** "sufficient" authority. They claim this issue was a mixed question of law and fact, and appellants should be collaterally estopped from raising it. [FN17]

FN17. The Districts assert appellants are relying on evidence that was not before the Board. However, they do not explain what they mean or give us any reference to appellants' brief. We therefore disregard the assertion.

We agree with appellants that the public interest exception to collateral estoppel should be applied here, because the issue presents a pure question of law. The Districts tried to make it a factual issue, but we shall explain why the facts presented by the District were immaterial.

Thus, in proceedings before the Board (where Water Code section 35470 was cited to the Board by state agencies), SMWD did not argue it lacked "authority" to levy fees for this purpose. Instead, SMWD argued and presented evidence that it would not be economically desirable to do so. SMWD submitted declarations stating that rates necessary to cover the increased costs would render the reclaimed water unmarketable and would encourage users to switch to potable water. SMWD maintained that imposition of higher fees on users would contravene the legislative policy expressed in Water Code section 13512, which directs the state to undertake all possible steps to encourage development of wastewater reclamation facilities.

The Board made no express finding concerning this issue. The record contains only the Board minutes, which reflect a motion was made "To find a mandate and continue the issue regarding the claimant's ability to levy a service charge, to the parameters and guidelines process." There was no second to the motion. A motion was then made to find the regulatory amendment contained a reimbursable mandate. The motion carried. The minutes then state: "Discussion: Chairperson Yost disagreed with the motion as she felt the claimant could recover their costs by levying a service charge...." The Board's Parameters and Guidelines stated in part: ****242** "If service charges or assessments were levied to defray the cost of the new criteria, the claim must be reduced by the amount received from such charges or assessment."

In proceedings before the trial court, SMWD admitted the district had the authority to levy fees but argued existence of authority was not enough, and the real question was whether it was economically feasible to levy fees sufficient to pay the mandated costs. Thus, SMWD's counsel stated at the hearing in the trial court: "The state keeps focusing on the question of whether the authority to issue, to assess fees and charges exists, and we have never contested that it didn't.

"But the statute which says that the Board cannot find the existence of a mandate if there's authority to assess fees and charges, and then the critical ***400** phrase, 'sufficient to pay for the mandated costs,' that's the condition with [sic] which they cannot satisfy.

"We proved that, the Board of Control hearing, through economic evidence. We proved it through testimony that the market was absolutely inelastic in terms of reclaimed water and potable water, that if you raise the price of reclaimed water over the potable water, that people would then buy the potable water, and that's all in the record.

"And so we showed that even though we have the authority, it was not sufficient to pay...."

We note the record also reflects comments by SMWD's counsel to the trial court, that its customers were paying the increased costs as an "advance" against the state's obligation. The court pointed out users' payment of increased costs disproved the economic evidence SMWD had presented to the Board, that it could not raise its prices without losing its customers. The record also contains indications that the Districts funded the increased costs by diverting money from other sources. As will appear, we need not address this evidence, because it is not relevant to the question of authority to levy fees sufficient to fund the increased costs imposed by the regulatory amendment, which is a question of law in this case.

The trial court's minute order stated the districts' authority to levy fees did not bar reimbursement for state-mandated costs, because the Board "implicitly determined" the districts did not have "sufficient" authority to levy fees to pay for the increased service mandated by the 1978 regulatory amendment, and this "implicit determination, resolving a mixture of legal and factual issues, became final and binding on [appellants] under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

On appeal, appellants argue the sole inquiry is whether the local agency has "authority" to levy fees sufficient to pay the costs, and it does not matter whether the local agency, for economic reasons, finds it undesirable to exercise that authority. Appellants argue this presents a question of law, such that the public interest exception to collateral estoppel would apply (assuming the requirements of collateral estoppel are otherwise met).

[8][9] We agree with appellants. In construing statutes, our primary task is to determine the lawmakers' intent. (*Brown v. Kelly Broadcasting Co.* (1989) 48 Cal.3d 711, 724, 257 Cal.Rptr. 708, 771 P.2d 406.) To determine intent, we look first to the words themselves. (*Ibid.*) "If the language is clear *401 and unambiguous there is no need for construction, nor is it necessary to resort to indicia of the intent of the Legislature...." (*Lungren v. Deukmejian* (1988) 45 Cal.3d 727, 735, 248 Cal.Rptr. 115, 755 P.2d 299.)

[10] Here, the statute is clear and unambiguous. On its face the statute precludes reimbursement where the local agency has "authority" to levy fees sufficient to pay for the mandated program or level of service. The legal meaning of "authority" includes the "Right to exercise powers; ..." (Black's Law Dictionary (6th ed.1990) p. 133.) The lay meaning of "authority" includes "the power or right to give commands [or] take action...." (Webster's New World Dictionary (3d college ed.1988) p. 92.) Thus, when we commonly ask whether a police officer has the "authority" to arrest a suspect, we want to know whether the officer has the legal **243 sanction to effect the arrest, not whether the arrest can be effected as a practical matter.

Thus, the plain language of the statute precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program.

The Districts in effect ask us to construe "authority," as used in the statute, as a practical ability in light of surrounding economic circumstances. However, this construction cannot be reconciled with the plain language of the statute and would create a vague standard not capable of reasonable adjudication. Had the Legislature wanted to adopt the position advanced by the Districts, it would have used "reasonable ability" in the statute rather than "authority."

The question is whether the Districts have authority, i.e., the right or power, to levy fees sufficient to cover the costs. The Districts clearly have authority to levy fees sufficient to cover the costs at issue in this case. Water Code section 35470 authorizes the levy of fees to "correspond to the cost and value of the

service," and the fees may be used "to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose." The Districts do not demonstrate that anything in Water Code section 35470 limits the authority of the Districts to levy fees "sufficient" to cover their costs.

Thus, the economic evidence presented by SMWD to the Board was irrelevant and injected improper factual questions into the inquiry.

On appeal, the Districts briefly argue economic undesirability of levying fees constitutes a lack of authority to levy fees sufficient to cover costs. They claim the evidence before the Board showed SMWD "could not" *402 increase its fees because it was already charging as much for reclaimed as it was for potable water. However, the cited portion of the record does not show SMWD "could not" increase its fees but only that an increase would render reclaimed water unmarketable and encourage users to switch to potable water. The Districts cite no authority supporting their construction of former Revenue and Taxation Code section 2253.2 (now Gov.Code, § 17556) that *authority* to levy fees sufficient to cover costs turns on economic feasibility. We have seen the plain language of the statute defeats the Districts' position.

Since the issue in this case presented a question of law, we conclude the public interest exception to collateral estoppel applies. (*Sacramento II, supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.)

The Districts argue application of the public interest exception in this case raises policy concerns about the finality of administrative decisions on state-mandated costs, because if collateral estoppel does not apply in this case, it will never apply. However, we merely hold, in accordance with Supreme Court pronouncement, that the public interest exception to collateral estoppel applies under the circumstances of this case to this state-mandated cost issue which presents solely a question of law.

The Districts argue any fees levied by the districts "cannot exceed the cost to the local agency to provide such service," because such excessive fees would constitute a special tax. However, the districts fail to explain how this is an issue. No one is suggesting the districts levy fees that exceed their costs.

The Districts cite evidence presented to the referee in the aborted hearing to determine amounts owed to each District, that SMWD's Director of Finance testified SMWD has other sources of revenue from other services it provides (such as sewer service), maintains separate accounts, and borrowed funds internally from other accounts to cover costs incurred as a result of the subject mandate. The Districts assert this testimony reflects that SMWD "recognized the legal limitations on its authority to impose fees for the services that it provides." However, nothing in this evidence demonstrates any legal limitations on the authority to levy the necessary fees.

The Districts say appellants appear to believe the Districts should require users of other services to subsidize the Districts' cost of reclaiming and selling wastewater, through excessive user fees. However, we do not read appellants' brief as presenting ****244** any such argument and in any event do not base our decision on that ground.

***403** In a footnote, the districts make the passing comment: "In light of the adoption of Proposition 218, which added Articles XIII C and XIII D to the California Constitution this past November [1996], the authority of local agencies to recover costs for many services will be impacted by the requirement to secure the approval by majority vote of the property owners voting, to levy or to increase property related fees. See Section 6, Article XIII D." The districts do not contend that the services at issue in this appeal are among the "many services" impacted by Proposition 218. We therefore have no need to consider what effect, if any, Proposition 218 might have on the issues in this case.

We conclude the districts were not entitled to reimbursement of state-mandated costs, because they had authority to levy fees sufficient to pay for the level of service mandated by the 1978 regulatory amendment. Appellants were not collaterally estopped from raising this issue in the trial court. We thus conclude the Districts' mandamus petitions should have been denied. We therefore need not address appellants' contentions that (1) the regulatory amendment did not constitute a new program or higher level of service, or (2) any right to reimbursement was abolished upon repeal of former Revenue and Taxation Code section 2207.

DISPOSITION

Let a peremptory writ of mandate issue, directing the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions for writ of mandate. Appellants shall recover their costs on appeal.

PUGLIA, P.J., and NICHOLSON, J., concur.

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al, Appellants and Cross-Respondents., 1997 WL 33560339 (Appellate Brief) (Cal.App. 3 Dist. January 10, 1997), Appellants' Opening Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al., Appellants and Cross-Respondents., 1997 WL 33560175 (Appellate Brief) (Cal.App. 3 Dist. April 14, 1997), Respondents' Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents, v. STATE CONTROLLER, et al., Appellants., 1997 WL 33559969 (Appellate Brief) (Cal.App. 3 Dist. June 4, 1997), Appellants' Reply Brief

59 Cal.App.4th 382, 69 Cal.Rptr.2d 231, 97 Cal. Daily Op. Serv. 8821, 97 Daily Journal D.A.R. 14,255

END OF DOCUMENT

ATTACHMENT

7

188 Cal.App.4th 794

Court of Appeal, Third District, California.

CLOVIS UNIFIED SCHOOL DISTRICT

et al., Plaintiffs and Appellants,

v.

John CHIANG, as State Controller,

etc., Defendant and Appellant.

No. Co61696.

Sept. 21, 2010.

As Modified on Denial of Rehearing Oct. 14, 2010.

Synopsis

Background: School districts and community college districts brought action against State Controller's Office for declaratory and writ relief challenging auditing rules used in reducing state-mandated reimbursement claims for employee salary and benefit costs. The Superior Court, Sacramento County, No. 06CS00748 and 07CS00263, [Lloyd G. Connelly, J.](#), invalidated the Contemporaneous Source Document Rule (CSDR) as applied to Intradistrict Attendance Program and Collective Bargaining Program, granted no relief as to CSDR as applied to the School District of Choice Program (SDC) and the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and upheld the Health Fee Rule. Plaintiffs appealed.

Holdings: The Court of Appeal, [Butz, J.](#), held that:

[1] CSDR implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims;

[2] declaratory and traditional mandate relief was appropriate form of relief for use of CSDR as underground regulation; and

[3] amount of optional student fee was deducted from amount reimbursed to community college districts for state-mandated costs.

Reversed in part with directions and affirmed in part.

West Headnotes (14)

[1] Declaratory Judgment

🔑 [Limitations and laches](#)

Mandamus

🔑 [Time to Sue, Limitations, and Laches](#)

States

🔑 [State expenses and charges and statutory liabilities](#)

School districts' and community college districts' action against State Controller's Office, for declaratory and writ relief challenging audits that reduced state-mandated reimbursement claims for employee salary and benefit costs based on an auditing rule which was an invalid underground regulation in violation of the state Administrative Procedure Act (APA), was subject to the three-year statute of limitations for lawsuits based on statutory liability, since state-mandated reimbursement was a statutory liability. [West's Ann.Cal.C.C.P. § 338\(a\)](#); [West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.](#)

[1 Cases that cite this headnote](#)

[2] Administrative Law and Procedure

🔑 [Nature and Scope](#)

An Administrative Procedure Act (APA) regulation has two principal characteristics: it must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency's procedure. [West's Ann.Cal.Gov.Code § 11342.600](#).

[1 Cases that cite this headnote](#)

[3] Administrative Law and Procedure

🔑 [Nature and Scope](#)

For a regulation to “apply generally,” as required to be subject to the Administrative Procedure Act (APA), the rule need not apply universally; a rule applies generally so long

as it declares how a certain class of cases will be decided. [West's Ann.Cal.Gov.Code § 11342.600](#).

[Cases that cite this headnote](#)

[4] States

[Administration of finances in general](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) applied generally, as required to be a regulation subject to the Administrative Procedure Act (APA), where the CSDR was applied generally to the auditing of reimbursement claims, and the Controller's auditors had no discretion to judge on a case-by-case basis whether to apply the CSDR. [West's Ann.Cal.Gov.Code § 11342.600](#).

[Cases that cite this headnote](#)

[5] States

[State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the School District of Choice (SDC) Program in effect before May 27, 2004, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; the CSDR barred the use of employee time declarations and certifications as source documents or equivalents even though the P&Gs had nothing to say on that subject, and the CSDR did not countenance the use of documented estimates even though such estimates were allowable under the P&Gs. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code § 48209.9](#) (Repealed).

[Cases that cite this headnote](#)

[6] States

[State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of employee time declarations and certifications as source documents, and the CSDR did not countenance the use of documented estimates. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code §§ 35925–35927, 40041.5, 40042](#) (Repealed).

[Cases that cite this headnote](#)

[7] States

[State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Intradistrict Attendance Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of time studies or employee time declarations and certifications as source documents. [West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5\(a\)](#); [West's Ann.Cal.Educ.Code § 35160.5](#).

[Cases that cite this headnote](#)

[8] States

🔑 [State expenses and charges and statutory liabilities](#)

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the school district Collective Bargaining Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR required source documents. [West's Ann.Cal.Gov.Code §§ 3540 et seq., 11342.600, 17557, 17558.5\(a\)](#).

[1 Cases that cite this headnote](#)

[9] **Declaratory Judgment**

🔑 [State officers and boards](#)

Declaratory Judgment

🔑 [Education](#)

Mandamus

🔑 [Establishment, maintenance, and management of schools](#)

Declaratory and accompanying traditional mandate relief was an appropriate form of relief, for school districts' challenge to State Controller's Office's policy of using an underground regulation to conduct audits in violation of the Administrative Procedure Act (APA), even though the underground regulation was later incorporated into valid regulations, where the dispute related to audit determinations under the invalid regulation which did not become final prior to the applicable statute of limitations, and there was no adequate administrative remedy because the Commission on State Mandates consistently refused to rule on underground regulation claims. [West's Ann.Cal.Gov.Code § 11350](#).

[2 Cases that cite this headnote](#)

[10] **Evidence**

🔑 [Administrative rules and regulations](#)

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of a subsequent amendment of the regulatory Parameters and Guidelines (P&Gs) applied to the reimbursement claims, which brought the underground regulations into compliance with the Administrative Procedure Act (APA) after the time period at issue in the lawsuit. [West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.](#)

[Cases that cite this headnote](#)

[11] **Evidence**

🔑 [Official proceedings and acts](#)

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing school districts' and community college districts' state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of the Commission on State Mandates Incorrect Reduction Claim caseload summary or the Controller's list of final audit reports for California school districts and community college districts. [West's Ann.Cal.Gov.Code § 17558.7\(a\)](#).

[1 Cases that cite this headnote](#)

[12] **States**

🔑 [State expenses and charges and statutory liabilities](#)


Under the statutes requiring reimbursement to local government for state-mandated costs, the amount of an optional student health fee was deducted from the amount reimbursed to community college districts for the state-mandated cost of the Health Fee Elimination Program, even when districts chose not to charge their students those fees. [West's](#)

[Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#); [West's Ann.Cal.Educ.Code § 76355\(a\)\(1\)](#); § 72246 (Repealed).

See Cal. Jur. 3d, State of California, § 104; 9 Witkin, Summary of Cal. Law (10th ed. 2005) Taxation, § 121.

[Cases that cite this headnote](#)


[13] States

 [State expenses and charges and statutory liabilities](#)

To the extent a local agency or school district has the authority to charge for a state-mandated program or increased level of service, that charge cannot be recovered as a state-mandated cost. [West's Ann.Cal. Const. Art. 13B, § 6](#); [West's Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#).

[Cases that cite this headnote](#)

[14] States

 [State expenses and charges and statutory liabilities](#)

State Controller's Office had the authority to rely on the Government Code, rather than only on the Parameters and Guidelines (P&Gs) adopted by the Commission on State Mandates, to uphold an audit rule excluding the amount of optional fees from the amount recoverable as state-mandated costs. [West's Ann.Cal.Gov.Code §§ 17514, 17556\(d\)](#).

[Cases that cite this headnote](#)

Attorneys and Law Firms

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Mirada Unified School District, Riverside Unified School District, San Juan Unified School District and Sweetwater Union High School District.

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Opinion

BUTZ, J.

***797** This declaratory relief and writ of mandate action concerns the validity of two auditing rules used by defendant State Controller's Office (Controller). The Controller used these rules in reducing state-mandated reimbursement claims for employee salary and benefit costs submitted from plaintiff school districts and community college districts (hereafter plaintiffs).

Contemporaneous Source Document Rule (CSDR)

The first auditing rule is referred to by plaintiffs as the Contemporaneous Source Document Rule (CSDR). The Controller used this rule to reduce reimbursement claims for the following four state-mandated school district programs during the challenged period straddling fiscal years 1998 to 2003: (1) the School District of Choice Program (SDC); (2) the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD); (3) the ***798** Intradistrict Attendance Program; and (4) the Collective Bargaining Program. We conclude this rule was an invalid underground regulation under the state Administrative Procedure Act (APA) during this period. ([Gov.Code, § 11340 et seq.](#))¹ Consequently, we overturn the Controller's audits for these four programs during this period to the extent they were based on this rule.

Health Fee Elimination Program: Health Fee Rule

The second auditing rule is the Health Fee Rule, which the Controller used to reduce reimbursement claims for state-****37** mandated health services provided by the plaintiff community college districts pursuant to the Health Fee Elimination Program. We uphold the validity of this rule.

The trial court: (1) invalidated the CSDR as applied to the Intradistrict Attendance and Collective Bargaining Programs (from which the Controller appeals); (2) hinted at the CSDR's invalidity as applied to the

SDC and EPEPD Programs but did not grant relief thereon, apparently deeming the administrative remedy sufficient (from which the school districts appeal); and (3) upheld the validity of the Health Fee Rule (from which the community college districts appeal). We shall affirm the judgment regarding the Intradistrict Attendance Program, the Collective Bargaining Program, and the Health Fee Rule, but reverse the judgment, with directions, regarding the SDC and EPEPD Programs.

Because the issues raised in this appeal are almost entirely legal ones subject to our independent review (see *Grier v. Kizer* (1990) 219 Cal.App.3d 422, 434, 268 Cal.Rptr. 244, disapproved on a different ground in *Tidewater Marine Western, Inc. v. Bradshaw* (1996) 14 Cal.4th 557, 577, 59 Cal.Rptr.2d 186, 927 P.2d 296 (*Tidewater*) [whether an auditing rule is an APA regulation is a question of law]), it is unnecessary to set forth a factual background at this stage. Instead, we will proceed straight to our discussion. First, we will briefly summarize the process of state-mandated reimbursement and the concept of underground regulation. Then we will turn our attention to the programs and remedies at issue, weaving in the pertinent facts as we go.

DISCUSSION

I. State-mandated Reimbursement Process

In 1979, California's voters adopted [article XIII B, section 6 of the state Constitution](#), which specifies that if the state imposes any “new program *799 or higher level of service” on any local government (including a school district), the state must reimburse the locality for the costs of the program or increased level of service.

In 1984, the Legislature enacted statutes to govern the state mandate process. (§ 17500 et seq.) Under these statutes, the Commission on State Mandates (the Commission) determines, pursuant to a “test claim” process, whether a state program constitutes a reimbursable state mandate. (§§ 17551, subd. (c), 17553.)

Once the Commission determines that a state mandate exists, it adopts regulatory “[P]arameters and [G]uidelines” (P & G's) to govern the state-mandated reimbursement. (§ 17557.) The Controller, in turn, then issues nonregulatory “[C]laiming [I]nstructions” for

each Commission-determined mandate; these instructions must derive from the Commission's test claim decision and its adopted P & G's. (§ 17558.) Claiming Instructions may be specific to a particular mandated program, or general to all such programs.

The Controller may audit a reimbursement claim filed by a local agency or school district within three years of the claim's filing or last amendment. (§ 17558.5, subd. (a).)

If the Controller reduces a specific reimbursement claim via an audit, the claimant may file an “[I]ncorrect [R]eduction [C]laim” with the Commission. (§ 17558.7, subd. (a).)

II. The Concept of Invalid Underground Regulation

[I] In their petitions for writ of mandate and complaints for declaratory relief, the school districts (comprising Clovis, **38 Fremont, Newport–Mesa, Norwalk–La Mirada, Riverside, Sweetwater, and San Juan; hereafter collectively, School Districts) allege that the CSDR constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing salary and benefit costs in reimbursement claims for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs during the applicable periods roughly encompassing the fiscal years 1998 to 2003.²

*800 In their petition for writ of mandate and complaint for declaratory relief (actually appended to the School Districts' petition and complaint), the community college districts (comprising San Mateo, Santa Monica, State Center, and El Camino; hereafter collectively, College Districts) allege that the Health Fee Rule constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing reimbursement claims for the Health Fee Elimination Program or, alternatively, that the Controller's auditing actions in this respect were beyond its lawful authority.

The basic legal principles that apply to these allegations are as follows:

“ ‘If a rule constitutes a “regulation” within the meaning of the APA (other than an “emergency regulation” ...) it may not be adopted, amended, or

repealed except in conformity with “basic minimum procedural requirements” ’ ’ which include public notice, opportunity for comment, agency response to comment, and review by the state Office of Administrative Law. (*Morning Star Co. v. State Bd. of Equalization* (2006) 38 Cal.4th 324, 333, 42 Cal.Rptr.3d 47, 132 P.3d 249 (*Morning Star*).) “These requirements promote the APA’s goals of bureaucratic responsiveness and public engagement in agency rulemaking.” (*Ibid.*)

Any regulation “ ‘that substantially fails to comply with these requirements may be judicially declared invalid’ ” and is deemed unenforceable. (*Morning Star, supra*, 38 Cal.4th at p. 333, 42 Cal.Rptr.3d 47, 132 P.3d 249; § 11350, subd. (a).)

[2] A “regulation” under the APA “means every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure.” (§ 11342.600.) As we will later explain more fully, an APA regulation has two principal characteristics: It must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency’s procedure. (*Morning Star, supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249; *Tidewater, ***39 supra*, 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296.)

***801 III. The CSDR as Applied to the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs**

We will start with the SDC Program. We do so because, of these four programs, the Commission’s APA-valid, pre-May 27, 2004 P & G’s for the SDC Program most closely resemble the Controller’s CSDR.³ If we conclude, nevertheless, that the CSDR is an underground regulation that violates the APA in this context, we will have to conclude similarly for these three other programs. It is undisputed that the Controller’s CSDR was not enacted in compliance with APA procedure.

As we shall explain, we conclude that the CSDR, as applied to the (pre-May 27, 2004) SDC Program, is an underground, unenforceable regulation under the APA.

Accordingly, the CSDR is invalid as applied to the School Districts’ SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003 (see fn. 2, *ante*), and invalid in parallel fashion to the three other programs as well.

The Commission determined, in the mid–1990’s, that the SDC Program imposed a reimbursable state-mandated program on school districts by establishing the right of parents/guardians of students, who were prohibited from transferring to another school district, to appeal to the county board of education. (See former *Ed.Code*, § 48209.9, inoperative July 1, 2003.)

From August 24, 1995, until May 27, 2004, the Commission’s P & G’s for the SDC Program set forth the following two requirements for school districts seeking SDC state-mandated reimbursement for employee salary and benefit costs: (1) “Identify the employee(s) and their job classification, describe the mandated functions performed and specify the actual number of hours devoted to each function, the productive hourly rate and the related benefits. The average number of hours devoted to each function may be claimed if supported by a documented time study”; and (2) “For auditing purposes, all costs claimed must be traceable to source documents (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs.”

The Commission’s SDC Program P & G’s divide the subject of reimbursable costs into three categories: employee salaries and benefits; materials and supplies; and contracted services. The examples set forth in these P & G’s for *802 “source documents” align with these three categories: “employee time records” for employee salaries and benefits; “invoices,” “receipts” and “purchase orders” for materials and supplies; and “contracts” for contracted services. At issue in this appeal for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs are just the cost category of employee salaries and benefits.

From the initial issuance of the Commission’s SDC Program P & G’s in 1995 until May 27, 2004, the Controller’s SDC-specific Claiming Instructions substantively aligned with the SDC Program P & G’s.

However, in September 2003, the Controller revised its general Claiming Instructions (that apply to state-mandated reimbursement claims in general) to set ****40** forth, for the first time, what has become known as the CSDR. The CSDR states:

“To be eligible for mandated cost reimbursement for any fiscal year, only actual costs may be claimed. Actual costs are those costs actually incurred to implement the mandated activities. Actual costs must be traceable and supported by source documents that show the validity of such costs, when they were incurred, and their relationship to the reimbursable activities. A source document is a document created at or near the same time the actual cost was incurred for the event or activity in question. Source documents may include, but are not limited to, employee time records or time logs, sign-in sheets, invoices, and receipts.

“Evidence corroborating the source documents may include, but is not limited to, worksheets, cost allocation reports (system generated), purchase orders, contracts, agendas, training packets, and declarations. Declarations must include a certification or declaration stating, ‘I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct based upon personal knowledge.’ Evidence corroborating the source documents may include data relevant to the reimbursable activities otherwise in compliance with local, state, and federal government requirements. However, corroborating documents cannot be substituted for source documents.”

Substantial evidence showed that prior to the use of the CSDR in Controller audits, school districts obtained SDC state-mandated reimbursement for employee salary and benefit costs based on (1) declarations and certifications from the employees that set forth, after the fact, the time they had spent on SDC-mandated tasks; or (2) an annual accounting of time determined by the number of mandated activities and the average time for each activity. After the Controller began using the CSDR in its auditing of SDC reimbursement claims, the Controller deemed these declarations, certifications, and accounting methods insufficient, and reduced the ***803** reimbursement claims accordingly. (Substantial evidence also showed that the Controller, in 2000, began applying a CSDR requirement in field audits of SDC reimbursement claims, before the CSDR was expressed in the Controller's general

Claiming Instructions in September 2003 or adopted in the Commission's SDC Program P & G's on May 27, 2004.)

The question is whether the Controller's CSDR constituted an underground, unenforceable regulation that the Controller used in auditing the School Districts' SDC Program for the fiscal years 1998 to 2003, because the CSDR constituted a state agency regulation that was not adopted in conformance with the APA prior to its valid adoption in the Commission's SDC Program P & G's on May 27, 2004. We answer this question “yes.”

[3] “ ‘A regulation subject to the APA ... has two principal identifying characteristics. [Citation.] First, the agency must intend its rule to apply generally, rather than in a specific case. The rule need not, however, apply universally; a rule applies generally so long as it declares how a certain class of cases will be decided. [Citation.] Second, the rule must “implement, interpret, or make specific the law enforced or administered by [the agency], or ... govern [the agency's] procedure.” ’ ” (*Morning Star*, *supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249, quoting *Tidewater*, *supra*, 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296, italics added.)

[4] As to the first criterion—whether the rule is intended to apply generally—substantial evidence supports the trial ****41** court's finding that the CSDR was “applie[d] generally to the auditing of reimbursement claims ...; the Controller's auditors ha[d] no discretion to judge on a case[-]by[-]case basis whether to apply the rule.” (The trial court made this finding in the context of ruling on the Intradistrict Attendance and Collective Bargaining Programs, but this finding is a general one that applies equally to the SDC Program. The trial court did not apply this general finding to the SDC Program only because the court reasoned that the CSDR was not an APA-violative underground regulation in the SDC context, as the Commission later adopted the CSDR into its SDC Program P & G's (see fn. 3, *ante*). As we shall explain later, we reject this reasoning involving subsequent adoption.)

[5] The CSDR also meets the second criterion of being a regulation: It implements, interprets, or makes specific the law enforced or administered by the Controller. The Controller argues, to the contrary, that the CSDR “merely restates” the source document requirement found in the pre-May 27, 2004 Commission P & G's for the SDC Program, and that “source documents” are, by their

sourceful nature, contemporaneous. As we explain, we reject this argument.

Admittedly, the pre-May 27, 2004 SDC Program P & G's stated that, "[f]or auditing purposes, all costs claimed must be traceable to source documents *804 (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs." However, the Controller's CSDR, in contrast to these P & G's, did not equate "source documents" with "worksheets," but relegated "worksheets" to the second-class status of "corroborating documents" that can only serve as evidence that corroborates "source documents." This is no small matter either. This is because, prior to the Controller using the CSDR to audit reimbursement claims, the School Districts, in making these claims, had used employee declarations and certifications and average time accountings to document the employee time spent on SDC-mandated activities; and such methods can be deemed akin to worksheets.

More significantly, the CSDR expressly states that employee declarations and certifications are only corroborating documents, *not* source documents; the pre-May 27, 2004 SDC Program P & G's had nothing to say on this subject. In effect, then, the CSDR bars the use of employee time declarations and certifications as source documents or source document-equivalent worksheets, in contrast to the pre-May 27, 2004 P & G's.

Along similar lines, the pre-May 27, 2004 SDC Program P & G's also stated that the "average number of [employee] hours devoted to each [mandated] function may be claimed if supported by a documented time study"; the record showed that such a time study is a documented estimate. The CSDR, which recognizes only actual costs traceable and supported by contemporaneous source documents, does not countenance such estimation.

Nor may the Controller point to the examples of the source documents listed in the pre-May 27, 2004 SDC Program P & G's and argue they show the contemporaneous nature of source documents: "employee time records, invoices, receipts, purchase orders, contracts, etc." First, this argument ignores the source document-equivalent of "worksheets" set forth in these P & G's, as discussed above. And, second, while the CSDR lists "employee time records," "invoices," and

"receipts" as source documents, it specifies that "purchase orders," "contracts" (and "worksheets") **42 are only corroborating documents, not source documents.

Finally, the School Districts that had used employee declarations and certifications and average time accountings to document time for reimbursement claims also note that it is *now* physically impossible to comply with the CSDR's requirement of contemporaneousness that "[a] source document is a *805 document *created at or near the same time the actual cost was incurred* for the event or activity in question."⁴ (Italics added.)

Given these substantive differences between the Commission's pre-May 27, 2004 SDC Program P & G's and the Controller's CSDR, we conclude that the CSDR implemented, interpreted or made specific the following laws enforced or administered by the Controller: the Commission's pre-May 27, 2004 P & G's for the SDC Program (§ 17558) [the Commission submits regulatory P & G's to the Controller, who in turn issues nonregulatory Claiming Instructions based thereon]; and the Controller's statutory authority to audit state-mandated reimbursement claims (§ 17561, subd. (d) (2)).

Consequently, the CSDR meets the two criteria for being an APA regulation. And because the CSDR, as applied to the SDC Program, was not adopted as a regulation in compliance with the APA rule-making procedures until its May 27, 2004 incorporation into the SDC Program P & G's, this CSDR is an underground and unenforceable regulation as applied to the audits of the School Districts' SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

[6] [7] [8] As we noted at the outset of this part of the opinion, if we were to conclude (as we now have done) that the CSDR is an underground regulation that violates the APA in the SDC Program context presented here, we would have to conclude similarly for the EPEPD, Intradistrict Attendance, and Collective Bargaining Programs too. This is because the Commission's P & G's for these latter three programs less resembled the Controller's CSDR than did the Commission's pre-May 27, 2004 P & G's for the SDC Program. We now turn to the EPEPD, Intradistrict

Attendance, and Collective Bargaining Programs, which we will describe briefly in order.

The EPEPD Program was found to be a reimbursable state-mandated program in 1987. This program requires school districts to establish earthquake procedures for each of its school buildings, and to allow use of its buildings, grounds and equipment for mass care and welfare shelters during public disasters or emergencies. (Former Ed.Code, §§ 35925–35927, [40041.5](#), [40042](#).)

806** From 1991 until June 2, 2003, the Commission's P & G's for the EPEPD Program required school districts seeking state-mandated reimbursement for employee salary and benefit costs: (1) to “provide a listing of each employee ... and the number of hours devoted to their [mandated] function”; and (2) “[f]or auditing purposes, all costs claimed may be *43** traceable to source documents and/or worksheets that show evidence of the validity of such costs.” The Controller's EPEPD-specific Claiming Instructions, since 1996, have stated that “Source documents required to be maintained by the [reimbursement] claimant may include, but are not limited to, employee time cards and/or cost allocation reports.” (The Commission, in like fashion to what it did with the SDC Program, incorporated the CSDR into its P & G's for the EPEPD Program, effective June 2, 2003.)

These pre-June 2, 2003 P & G's for the EPEPD Program parallel the pre-May 27, 2004 P & G's for the SDC Program, but even less resemble the Controller's CSDR than did those SDC Program P & G's. For the reasons set forth above involving the SDC Program, then, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' EPEPD Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

The Intradistrict Attendance Program, in 1995, was found to be a reimbursable state-mandated program. This program establishes a policy of open enrollment within a school district for district residents. (Former [Ed.Code](#), § [35160.5](#).)

Since 1995, the Commission's P & G's for the Intradistrict Attendance Program have required school districts seeking state-mandated reimbursement for employee

salary and benefit costs (1) to “[i]dentify the employee(s) and their job classification ... and specify the actual number of hours devoted to each [mandated] function.... The average number of hours devoted to each function may be claimed if supported by a documented time study”; and (2) “[f]or auditing purposes, all costs claimed must be traceable to source documents and/or worksheets that show evidence of the validity of such costs.” For the 1998 to 2003 period of fiscal years at issue, the Controller's Intradistrict Attendance Program-specific Claiming Instructions substantively mirrored P & G's for (1) above (except for the “average number of hours” provision), and stated as to source documents: “Source documents required to be maintained by the claimant may include, but are not limited to, employee time records that show the employee's actual time spent on this mandate.” (In early 2010, the Commission incorporated the Controller's CSDR into the Intradistrict Attendance Program P & G's; see fn. 5, *post*.)

***807** Applying the same reasoning we have applied above with respect to the SDC and the EPEPD Programs, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Intradistrict Attendance Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

That leaves the Collective Bargaining Program, which was found to be a reimbursable state-mandated program in 1978 (by the Commission's predecessor, the State Board of Control). This program requires school district employers to collectively bargain with represented employees, and to publicly disclose the major provisions of their agreements prior to final adoption. (§ [3540 et seq.](#))

If the Commission's pre-May 27, 2004 P & G's for the SDC Program most closely resemble the Controller's CSDR, the P & G's for the Collective Bargaining Program bear the least resemblance. As pertinent, the Collective Bargaining Program P & G's require school districts seeking reimbursement ****44** for employee salary and benefit costs to simply “[s]upply workload data requested ... to support the level of costs claimed” and “[s]how the classification of the employees involved, amount of time spent, and their hourly rate”; nothing is said about “source documents.”

The Controller's Collective Bargaining Program-specific Claiming Instructions substantively mirror those of the Intradistrict Attendance Program, stating that source documents include employee time records that show the employee's actual time spent on the mandated function. (And as with the Intradistrict Attendance Program, the Commission, in early 2010, incorporated the Controller's CSDR into the Collective Bargaining Program P & G's; see fn. 5, *post*.)

Consequently, employing the same reasoning we have employed above, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Collective Bargaining Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante*.) These audits are invalidated to the extent they used this CSDR.

IV. Declaratory and Related Writ of Mandate Relief

The trial court declared that the Controller's CSDR, as applied to the audits of the Intradistrict Attendance and Collective Bargaining Programs for the 1998 to 2003 period of fiscal years, was an invalid and void underground regulation under the APA. Correspondingly, the trial court issued a peremptory writ of mandate (traditional mandamus) invalidating these CSDR-based audits to the extent they were not final audit determinations for more than *808 three years before the School Districts filed their respective lawsuits on May 23, 2006 (Clovis et al.) and March 2, 2007 (San Juan). This three-year period is the applicable three-year statute of limitations under [Code of Civil Procedure section 338, subdivision \(a\)](#), for enforcing a statutory liability like state-mandated reimbursement. We are affirming this part of the trial court's judgment.

However, the trial court refused to provide, in parallel fashion, declaratory and writ of mandate relief for the CSDR-based audits involving the SDC and EPEPD Programs. The School Districts contend the trial court erred in this respect. We agree.

In refusing to provide this relief, the trial court reasoned that, since the Commission had incorporated the Controller's CSDR into the Commission's regulatory P & G's for the SDC and EPEPD Programs, there was no

longer an actual and ongoing controversy upon which to grant declaratory and related mandate relief concerning the CSDR's invalidity as an underground regulation in this context; and the Commission could administratively determine, pursuant to the Incorrect Reduction Claim process, the past audits that had used the CSDR before its incorporation into the SDC and EPEPD Programs' P & G's. This is where we part company with the trial court.

Our departure is based on [section 11350](#) of the APA and the legal principles set forth in *Californians for Native Salmon etc. Assn. v. Department of Forestry* (1990) 221 Cal.App.3d 1419, 271 Cal.Rptr. 270 (*Native Salmon*) and its progeny.

[Section 11350](#) of the APA specifies that “[a]ny interested person may obtain a judicial declaration as to the validity of any regulation ... by bringing an action for declaratory relief....” (§ 11350, subd. (a).)

In *Native Salmon*, the plaintiffs sought declaratory relief against the state forestry department, alleging that it was department policy, with respect to timber harvest plans: (1) to delay responses to public comments, and (2) to not evaluate the cumulative **45 impact of logging activities in the plans. The *Native Salmon* court concluded that declaratory relief was appropriate in this context, stating: “[Plaintiffs] ... challenge not a specific [administrative] order or decision [which is generally subject to review only pursuant to a writ of *administrative* mandate, rather than traditional mandate], or even a series thereof, but an overarching, quasi-legislative policy set by an administrative agency. Such a policy is subject to review in an action for declaratory relief.... [¶] ... [R]eview of specific, discretionary administrative decisions [must not be confused] with review of a generalized agency policy. Declaratory relief directed to *policies* of administrative agencies is not an unwarranted control of discretionary, specific agency decisions.” (*Native Salmon*, *809 *supra*, 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270, citations omitted; accord, *Venice Town Council, Inc. v. City of Los Angeles* (1996) 47 Cal.App.4th 1547, 1566, 55 Cal.Rptr.2d 465; see also *Simi Valley Adventist Hospital v. Bontá* (2000) 81 Cal.App.4th 346, 354–355, 96 Cal.Rptr.2d 633.)

[9] [10] [11] Similarly, here, the School Districts have challenged “an overarching, quasi-legislative policy set by an administrative agency” (*Native Salmon*, *supra*, 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270) rather

than a specific, discretionary administrative decision: i.e., the Controller's policy of using the (underground) CSDR to conduct audits in the SDC and EPEPD Programs for the period straddling the fiscal years 1998 to 2003. Declaratory and accompanying traditional mandate relief is appropriate in this context; this is an ongoing controversy limited by the three-year statute of limitations noted above.⁵

And there is no adequate administrative remedy. The trial court made a finding—supported by substantial evidence—that the Commission “consistently refuses to rule on underground regulation claims on the basis of an opinion that it lacks jurisdiction to decide such claims.” (The trial court made this finding in discussing the Intradistrict Attendance and Collective Bargaining Programs, but the finding applies equally to the SDC and EPEPD Programs.)

We conclude that declaratory and accompanying traditional mandate relief applies not only to the Intradistrict Attendance and Collective Bargaining Programs, but also to the SDC and EPEPD Programs for the fiscal years at issue.⁶

*810 V. Health Fee Elimination Program

[12] In 1986, and again in 1989 (after statutory amendment), the Commission determined ****46** that the Health Fee Elimination Program imposed a reimbursable state-mandated cost on those community college districts that provide health services, by requiring those districts to maintain in the future the level of service they had provided in the 1986–1987 fiscal year (termed, the “maintenance of effort” requirement); this “maintenance of effort” had to take place even if the districts, as they were and are permitted to do under the relevant statute, eliminated their nominal statutory student health fee (\$7.50 per semester maximum (former [Ed.Code, § 72246](#), Stats.1984, 2d Ex.Sess., ch. 1, p. 6642)); \$10 per semester maximum (current [Ed.Code, § 76355](#), subd. (a)(1)).⁷

The College Districts contend that the Controller's Claiming Instruction for the Health Fee Elimination Program is an underground regulation under the APA and beyond the Controller's authority. Specifically, the College Districts argue that the Controller's Health

Fee Rule misapplies the Commission's Health Fee Elimination Program P & G's by automatically reducing reimbursement claims by the amount that districts are statutorily authorized to charge students for health fees, even when a district chooses not to charge its students those fees.

Since 1989, the Commission's Health Fee Elimination Program P & G's have stated in pertinent part:

“Any offsetting savings the claimant experiences as a direct result of this statute [i.e., the health fee statutes—formerly [Ed.Code, § 72246](#); now [Ed.Code, § 76355](#)] must be deducted from the [reimbursement] costs claimed. In addition, reimbursement for this mandate received from any source, e.g., federal, state, etc., shall be identified and deducted from this claim. This shall include the amount of \$7.50 per full-time student per semester, \$5.00 per full-time student for summer school, or \$5.00 per full-time student per quarter, as authorized by [Education Code section 72246](#), subdivision] (a). This shall also include payments (fees) received from individuals other than students who are not covered by [Education Code Section 72246](#) for health services.”

***811** The Controller's Health Fee Rule (i.e., its Health Fee Elimination Program-specific Claiming Instruction) states in pertinent part:

“Eligible claimants will be reimbursed for health service costs at the level of service provided in the 1986/87 fiscal year. The reimbursement will be reduced by the amount of student health fees authorized per the [Education Code \[section\] 76355](#).”

The College Districts maintain that the Controller's Health Fee Rule constitutes an invalid, underground regulation—i.e., one not adopted pursuant to the APA—because it meets the two-part test of a “regulation”: (1) the Controller generally applies it; and (2) the rule implements, interprets or makes specific the Commission's Health Fee Elimination Program P & G's. ****47** (*Morning Star, supra*, 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249.)

There is no quibble with part (1)—general application. The real issue is with part (2) of the test—defining a “regulation” as implementing, interpreting, or making specific the Health Fee Elimination Program P & G's.

The College Districts argue that those P & G's require that the mandate claimant have actually "experience[d]" or "received" an amount of health service money for that amount to be deducted from the reimbursement claim. That is, if a college district does not charge its students a health service fee, as the district is statutorily permitted to do, then the district has not "experienced" or "received" that fee, and that amount cannot be deducted. The College Districts note that the Health Fee Rule, by contrast, states flatly that "reimbursement will be reduced by the amount of student health fees authorized per the [Education Code \[section\] 76355](#)."

The College Districts' argument carries some weight, especially when viewed solely within the prism of comparing the Health Fee Elimination Program P & G's to the Health Fee Rule semantically. But the argument falters when exposed to the broader context of the nature of state-mandated costs and common sense.

As for the nature of state-mandated costs, [section 17514](#) defines "costs mandated by the state" to mean "any *increased costs* which a local agency or school district is *required to incur* after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of [Section 6 of Article XIII B of the California Constitution](#)." (Italics added.) And [section 17556](#) reflects this definition by stating that costs are not deemed mandated by the state to the extent the "local agency or school district *has the authority* to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service." (§ 17556, subd. (d), italics added.)

[13] *812 The College Districts point out, though, in a series of overlapping arguments, that [sections 17514](#) and [17556](#) govern the *Commission's* determination of whether a program is a state-mandated program, not the *Controller's* determination as to audit reductions; and the Commission has already found the Health Fee Elimination Program to be a state-mandated program. This observation, however, does not diminish the basic principle underlying the state mandate process that [sections 17514](#) and [17566](#), subdivision (d) embody: To the extent a local agency or school district "has the authority" to charge for the mandated program or increased level

of service, that charge cannot be recovered as a state-mandated cost.⁸ (See [Connell v. Superior Court](#) (1997) 59 Cal.App.4th 382, 401, 69 Cal.Rptr.2d 231 ["the plain language of [[section 17556, subdivision \(d\)](#)] precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program"]; see [Connell](#), at pp. 397–398, 69 Cal.Rptr.2d 231.)

And this basic principle flows from common sense as well. As the Controller succinctly **48 puts it, "Claimants can choose not to require these fees, but not at the state's expense."

[14] The College Districts also argue that the Controller lacks the authority to rely on these Government Code sections to uphold its Health Fee Rule. The argument is that, since the Health Fee Rule is a claiming instruction, its validity must be determined *solely* through the Commission's P & G's. To accept this argument, though, we would have to ignore, and so would the Controller, the fundamental legal principles underlying state-mandated costs. We conclude the Health Fee Rule is valid.

DISPOSITION

We direct the trial court to issue a peremptory writ of mandate that invalidates the Controller's audits of the School Districts' SDC and EPEPD Program reimbursement claims for the applicable periods identified in footnote 2, *ante*, encompassing the fiscal years 1998 to 2003, to the extent those audits were based on the CSDR and did not become final audit determinations prior to the applicable three-year statute of limitations. If it chooses to do so, the Controller may re-audit the relevant reimbursement claims based on the documentation requirements of the P & G's and claiming *813 instructions when the mandate costs were incurred (i.e., not using the CSDR). In all other respects, the judgment is affirmed.

The parties shall each bear their own costs on appeal. (Cal. Rules of Court, rule 8.278(a)(3).)

We concur: SCOTLAND, P.J., and NICHOLSON, J.

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Footnotes

- 1 Undesignated statutory references are to the Government Code.
- 2 Because of the large number of school districts and program audits involved, as well as the slightly varying fiscal years at issue corresponding to these districts and program audits, we will use the general phrasing “applicable periods roughly encompassing the fiscal years 1998 to 2003” to describe the audits at issue. The parties are well aware of the particular audits being challenged for this period. Regardless, the School Districts must meet the applicable three-year statute of limitations that governs lawsuits based on statutory liability (like state-mandated reimbursement) for any audits of the four programs that have been determined on the basis of the invalidated CSDR. (*Code Civ. Proc.*, § 338; *Union of American Physicians & Dentists v. Kizer* (1990) 223 Cal.App.3d 490, 504, fn. 5, 272 Cal.Rptr. 886.) San Juan School District filed its petition and complaint on March 2, 2007. The rest of the School Districts, together, filed their petition and complaint on May 23, 2006. The trial court consolidated these two petitions and complaints on March 27, 2007.

The School Districts made challenges to other programs as well, but these challenges are not at issue on appeal.
- 3 On May 27, 2004, the Commission validly amended its SDC Program P & G's to adopt this CSDR language.
- 4 As a related aside, it is interesting to note that the Controller's SDC-specific Claiming Instructions that were in place during the pre-2004 P & G's stated that, “[f]or audit purposes, all supporting documents must be retained [by claimant] [only] for a period of two years after the end of the calendar year in which the reimbursement claim was filed or last amended, whichever is later”; but the Controller had three years in which to conduct a reimbursement audit “after the date that the actual reimbursement claim is filed or last amended, whichever is later.” (§ 17558.5, subd. (a).)
- 5 The Controller had requested that, at a minimum, we stay this appeal in light of the Commission's pending decision to incorporate the Controller's CSDR into the Commission's P & G's for the Intradistrict Attendance and Collective Bargaining Programs, as the Commission has done for the SDC and EPEPD Programs. In a subsequent request for judicial notice, the Controller has now noted that the Commission, on January 29, 2010, amended its P & G's for the Intradistrict Attendance and Collective Bargaining Programs to adopt the CSDR for each program. We deny this request for judicial notice. This is because the central issue in the present appeal concerns the Controller's policy of using the CSDR *during the 1998 to 2003 fiscal years*, when the CSDR was an underground regulation. This issue is not resolved by the Commission's *subsequent* incorporation of the CSDR into its Intradistrict Attendance and Collective Bargaining Programs' P & G's.

Also, we deny the School Districts' request for judicial notice of the Commission's Incorrect Reduction Claim caseload summary and the Controller's list of final audit reports for California school districts and community college districts.
- 6 In light of our resolution, we need not consider the School Districts' alternative claim that the Controller's CSDR constitutes an unlawful retroactive rule, or the School Districts' additional claim that regardless whether an actual controversy exists for purposes of declaratory relief, the requested writ relief is not moot.
- 7 As *Education Code section 76355, subdivision (a)(1)* states: “The governing board of a district maintaining a community college may require community college students to pay a fee in the total amount of not more than ten dollars (\$10) for each semester, seven dollars (\$7) for summer school, seven dollars (\$7) for each intersession of at least four weeks, or seven dollars (\$7) for each quarter for health supervision and services, including direct or indirect medical and hospitalization services, or the operation of a student health center or centers, or both.” (An inflationary adjustment is provided for in *subdivision (a)(2) of § 76355*.)
- 8 In light of *sections 17514 and 17556, subdivision (d)*, the Commission found the Health Fee Elimination Program to be a reimbursable state-mandated program to the extent the cost to community college districts of maintaining their level of health services at the 1986–1987 level, as required by the Health Fee Elimination Program mandate, is not covered by the nominal health fee authorized by *section 76355, subdivision (a)(1)* (\$10 maximum per semester per student).

ATTACHMENT

8

**Water Quality Control Policy
for
Addressing Impaired Waters: Regulatory Structure and Options**

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Water Quality Control Policy
for
Addressing Impaired Waters: Regulatory Structure and Options

Preface

The State Water Resources Control Board and the Regional Water Quality Control Boards (Water Boards) are committed to protecting and restoring the waters of California to ensure that all applicable beneficial uses are fully attained. Where waters are not meeting their beneficial uses from anthropogenic sources of pollutants, the Water Boards will use the Total Maximum Daily Load (TMDL) program to craft an implementation plan to ensure that the waters meet all applicable standards as soon as is practicable. The TMDL program remains a high priority program of the Water Boards.

This Policy is intended to ensure that the impaired waters of the state are addressed in a timely and meaningful fashion. In those cases where immediate restoration activities are available, the policy encourages those actions to take place immediately rather than waiting for a regulatory action by the Water Boards. In this respect, the Water Boards are committed to work with all interested parties to develop appropriate plans to restore water bodies to water quality standards. The Water Boards will continue to pursue information from all interested persons in developing such plans and will encourage early restoration activities prior to completion of a TMDL, where such activities will result in improved water quality.

While the Policy allows a TMDL to be established through alternative regulatory actions, it is anticipated that the majority of TMDLs will be established through an implementation plan adopted as a Basin Plan amendment. This is due to the complexity of the problems needing correction for most of the impaired waters. Where alternative regulatory methods are used to establish TMDLs, however, those TMDLs will be incorporated into the Water Quality Management Plan after they are approved. Using existing regulatory programs to ensure waters are restored, where such mechanism exists, will promote a cost effective and timely response that has proven elusive when relying exclusively on basin planning to establish TMDLs.

The Water Boards are committed to use all means to ensure that the waters of the State are protected for the use and enjoyment of the people of the State and that the waters attain the highest water quality that is reasonable, considering all demands being made and to be made of the waters. The Water Boards will continue to use the best information and science available to the program in developing restoration plans for the waters of the State.

I. Addressing Impaired Waters

Section 303(d) of the Clean Water Act (CWA) contains backstop provisions designed to ensure that all state water quality standards are met. The water quality of many waters of the state is currently unacceptable. The Total Maximum Daily Load (TMDL) program was created by the State Board to implement the requirements of these backstop provisions, consistent with state and federal law, for the purpose of ensuring that water quality standards are attained. The TMDL program is the primary program responsible for achieving clean water where traditional controls on point sources have proven inadequate to do so. The program thus is charged with creating plans that consider all sources and causes of impairment, and allocating responsibility for corrective measures, regardless of sources or cause, that will attain water quality standards.

The State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (Regional Boards) are delegated the responsibility for implementing California's Porter Cologne Water Quality Control Act and the federal Clean Water Act (CWA). Pursuant to relevant provisions of both of those acts the State and Regional Boards establish water quality standards, including designated (beneficial) uses and criteria or objectives to protect those uses. Section 303(d) of the CWA (33 USC § 1313(d)) requires the states to identify certain waters within their borders that are not attaining water quality standards and to establish the total maximum daily load (TMDL) for certain pollutants impairing those waters. According to USEPA, a TMDL is a numerical calculation of the amount of a pollutant that a water body can assimilate and still meet standards. A TMDL includes one or more numerical targets that represent attainment of the applicable standards, considering seasonal variations and a margin of safety, in addition to the allocation of the target or load among the various sources of the pollutant. These include waste load allocations (WLAs) for point sources, and load allocations (LAs) for nonpoint sources and natural background. TMDLs established for impaired waters must be submitted to the US Environmental Protection Agency (USEPA) for approval.

CWA section 303(e) requires the states to implement their approved TMDLs through their Continuing Planning Process. The USEPA's regulations do not provide for USEPA approval of TMDL implementation plans (however the regulations do require NPDES permits to be consistent with the assumptions and requirements of TMDLs and available WLAs). TMDL implementation is therefore largely a function of California law, including but not limited to CWC Section 13242, which requires a program of implementation to achieve water quality objectives.

Regional Boards have wide latitude, numerous options, and some legal constraints that apply when determining how to address impaired waters. Irrespective of whether CWA section 303(d) requires a TMDL, the process for addressing waters that do not meet applicable standards must be accomplished through existing regulatory tools and mechanisms. This policy is intended to outline those tools and mechanisms, and explain how the federal requirement to establish TMDLs fits within those confines. This policy also establishes a certification¹ process whereby the Regional Boards can formally recognize regulatory or nonregulatory actions of other entities as appropriate implementation programs when the Regional Boards determine those actions will result in attainment of standards. In addition, implementation activities taken to achieve LAs must be consistent with the SWRCB Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Implementation Policy).

This policy is not intended and shall not be construed as limiting the authority of the State Board or the Regional Boards in any manner. A flowchart is included as attachment A, which tracks this discussion.

The following principles apply to the process of resolving impairments in surface waters not attaining standards in California:

¹ The term "certification" has been used in many contexts related to point and nonpoint source pollution control. Its use here is expressly intended to not embody any of those definitions. Unless otherwise indicated, the term "certification", as used in this policy, is limited to describing a process by which the Regional Boards can formally recognize an acceptable alternative implementation program for a TMDL. The term "Certification" is further defined in the glossary.

A. If the water body is neither impaired nor threatened, the appropriate regulatory response is to delist the water body.

The first step in addressing a listing is to identify the scope of the problem. In some cases, this analysis will lead to a conclusion that standards are in fact being attained and the water is not threatened, either because the assumptions underlying the listing were incorrect, or because the impairment has been corrected. In such circumstances, it is appropriate to delist the water body in accordance with the “Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List.”

B. If the failure to attain standards is due to the fact that the applicable standards are not appropriate to natural conditions, an appropriate regulatory response is to correct the standards.

If the water body is impaired, the cause of the impairment must be ascertained. There are five common reasons (see below²) that standards are being exceeded. In most cases, a pollution reduction strategy of some sort will be warranted. However, in some instances part or the entire cause of the impairment will be due to problems with the standards themselves. While in most cases the existing standards are appropriate and amenable to TMDL development, periodically investigation during the development of a TMDL or its implementation plan may reveal that the standards may be inappropriate or imprecise, thus rendering water quality attainment impossible unless standards are modified. In such cases, staff will undertake a limited review of the standards. The purpose of standards review during the TMDL process is not to reassess the Water Boards’ previous policy determinations that underlie the Beneficial Use Designations or Water Quality Objectives, but rather to ensure that the standards are amenable to an appropriate implementation plan. Modification of standards should not be viewed as “an easy fix” to avoid a TMDL, and review of the appropriateness of the standards will not be considered in every case. Reviewing the appropriateness of the policies underlying standards is complex and involves processes that generally are beyond the scope of TMDL process. Review of standards’ underlying policies generally occurs in the triennial review process. Unlike the triennial review process, the TMDL process is not designed to evaluate standards’ appropriateness, but to create a strategy to attain those standards that have already been established. If staff determines that the policies underlying the existing standards should be revisited, in lieu of crafting an implementation plan under this policy, the impaired water shall be referred to the Water Quality Standards staff for consideration of an appropriate standards action, through the appropriate processes. Irrespective, it is always necessary to review the standards applicable to the listed waterbody in order to determine the appropriate target or targets. Three typical examples of where standards may need modification are where:

- 1. Natural conditions alone are incompatible with the Standards:** This occurs either when natural background levels of a pollutant exceed water quality objectives, or natural background conditions are incompatible with the beneficial uses assigned in the basin plan, or natural background conditions are degrading the water body.
- 2. Standards are too broad or too vague:** For example, a water body may extend beyond an area where associated beneficial uses are appropriate, such as the geographic boundaries of an estuarine environment.

² This is not intended to be an exclusive list of causes.

- 3. Incompatible Uses Exist:** This may occur when two or more uses are incompatible with each other. For instance, wildlife waste may generate pathogen levels that render the water unsuitable for human recreation.

In each of the above situations, revision of the standards themselves may be the best (or only) way to address the impairment. Revision of the standards can include removing uses, establishing subcategories of uses, establishing seasonal uses (all of which may require a Use Attainability Analysis (UAA), establishing a Site-Specific Objective (SSO), or other modification of the water quality standard. When a standards action is deemed appropriate, the State and Regional Board shall follow all applicable requirements, including but not limited to those set forth in part 131 of Title 40 of the Code of Federal Regulations and Article 3 of Division 7, Chapter 4 of the California Water Code.

Additionally, an anti-degradation finding may authorize the lowering of water quality to some degree, which may address the impairment. The anti-degradation policies established in federal regulations and state policy both authorize the lowering of water quality in certain circumstances, where doing so would not impair beneficial uses. If an anti-degradation finding is appropriate, the requirements of 40 CFR § 131.12 and Resolution #68-16 shall be adhered to.

C. The State Board and Regional Boards are responsible for the quality of all waters of the state, irrespective of the cause of the impairment. In addition, a TMDL must be calculated for impairments caused by certain EPA designated pollutants.

The two other common causes or categories of impairment are related to anthropogenic factors. They include waters impaired by pollution and waters impaired by certain EPA designated pollutants. The Porter-Cologne Water Quality Control Act charges the State Board and Regional Boards with the responsibility of protecting the beneficial uses and quality of all waters of the state, irrespective of the cause of the impairment. Thus, if possible, the impairment should be corrected in either event. Presently, the EPA has designated all pollutants as suitable for TMDL calculation under proper technical conditions.

- 1. Pollutants:** The term “pollutant” is defined in section 502(6) of the Clean Water Act. Section 303(d) of the Clean Water Act requires TMDLs be established for each impairing “pollutant” that is suitable for TMDL calculation. EPA has determined that under proper technical conditions, all pollutants are suitable for TMDL calculation. Thus, before undertaking an action to correct an impairment, the Loading Capacity of the pollutant must be calculated for impaired waters, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. Corrective action will implement the assumptions and requirements of the Loading Capacity using any combination of existing regulatory tools.
- 2. Pollution:** The term “pollution” is defined in section 502(19) of the Clean Water Act and section 13050(l) of the California Water Code. When non-pollutant pollution is the cause of the impairment, the Regional Boards may skip the step of calculating the Loading Capacity and proceed immediately to designing corrective action using existing regulatory tools.

D. Whether or not a TMDL calculation is required as described above, impaired waters will be corrected (and implementation plans crafted) using existing regulatory tools

All violations of standards should be redressed, and the Boards may use any combination of existing regulatory tools to do so. Existing regulatory tools include³ individual or general waste discharge requirements (be they under Chapter 4 or under Chapter 5.5 (NPDES permits) of the Porter-Cologne Water Quality Control Act), individual or general waivers of waste discharge requirements, enforcement actions, interagency agreements, regulations, basin plan amendments, and other policies for water quality control. Basin plan amendments can include adopting new or revised implementation measures, adopting prohibitions, or where appropriate, modifying standards. The priority ranking assigned to an impaired water will help the Regional Boards determine which impairments will be addressed in what order, according to available resources. The following sections describe the different forms in which an implementation plan may be adopted. The requirement to establish the TMDL or Loading Capacity for the pollutant does not change this analysis.

1. If the solution to an impairment will require multiple actions of the regional board that affect multiple persons, the solution must be implemented through a basin plan amendment or other regulation.

The requirement to use a basin plan amendment or other regulation to tie together numerous actions by the Regional Board stems from the California Administrative Procedures Act (APA). Consistent with the APA, any policy, plan, or guideline must be adopted as a regulation in the proper manner before it may be applied. The term “underground regulation” has been used to describe regulations that have not been properly adopted. The APA requirements ensure that persons subject to regulations have the opportunity to participate in the process during which the assumptions underlying an implementation plan are derived. If there were no such process, every regulated person would be subject to subsequent requirements based upon assumptions determined in a previous proceeding to which they were not a party. Accordingly, when an implementation plan would require multiple actions of the Regional Board, the plan itself must be adopted as a separate action to enable interested persons to comment upon the assumptions of the plan, before they are imposed, one by one, on members of the public at large. The Regional Boards generally use the basin planning process to adopt such plans.

2. If the solution to an impairment can be implemented with a single vote of the regional board, it may be implemented by that vote.

When an implementation plan can be adopted in a single regulatory action, such as a permit, a waiver, or an enforcement order, there is no legal requirement to first adopt the plan through a basin plan amendment. The plan may be adopted directly in that single regulatory action. The permittee (or other regulated party), and any other interested persons may challenge all assumptions underlying the implementation plan during that permitting (or other regulatory) action. In such circumstances, a basin plan amendment may be redundant. There may nonetheless be case-specific reasons why a Regional Board may choose to adopt an implementation plan by a basin plan amendment even if it could be implemented by a single vote

³ This section is not intended to articulate an exhaustive list of tools available to the State Board or Regional Boards to address violations of standards. It is only intended to provide an example of possibilities.

of the Regional Board. There is no error in doing so should the Regional Board, for whatever reason, deem it desirable.

- 3. If a solution to an impairment is being implemented by a regulatory action of another state, regional, local, or federal agency, and the Regional Board finds that the solution will actually correct the impairment, the Regional Board may certify that the regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

The Regional Boards and State Board have the ultimate responsibility over water quality protection for all waters in the State. That responsibility does not imply that the State Board or a Regional Board must adopt redundant regulations when they determine that another regulatory body is adequately addressing a water quality problem. Like most state agencies, the State and Regional Boards generally have inadequate resources to timely address each and every water quality problem, and they must therefore, prioritize use of their resources to where they will do the most good. The fact, however, that another regulatory body is addressing a water quality problem is not alone a sufficient basis for a Regional Board to forego remedial action. The Regional Boards may neither delegate nor abdicate their responsibility over the waters of the State. Furthermore, they may not indefinitely defer taking necessary action if another agency is not properly addressing a problem. However, where another agency is constructively involved in efforts to address an impairment, the SWRCB and RWQCB should seek to take those efforts into account and, where appropriate, take advantage of these third-party efforts. Not only does this avoid unnecessary duplication of effort, it can leverage the SWRCB's and RWQCBs' limited staffing and financial resources.

Only when the Regional Board independently determines that a program being implemented by another regulatory entity will be adequate to correct the impairment, may the Regional Board rely upon that program. If a Regional Board makes such findings, and the findings are supported by substantial evidence in the administrative record, the Regional Board may certify that such program will implement the assumptions and requirements of the TMDL. Nothing in this policy should be construed as implying that State may avoid its responsibilities under Water Code sections 13263, 13269, 13377, or any other section of the Porter Cologne Act. In other words, this certification procedure shall not be deemed to allow the Regional Board to rely upon an alternative program where the Regional Board has a legal responsibility to implement its own requirements (such as issuing or waiving WDRs, or imposing certain effluent limitations in permits where such effluent limitations are required by law). The Regional Boards must perform their statutorily mandated responsibilities irrespective of whether another body is also regulating an activity.

Finally, if water quality problems persist, the Regional Board may not indefinitely defer enforcement action to other agencies. The RWQCB can ask the agency to enforce its own requirements, and if they fail to do so in a manner consistent with the assumptions and requirements of the TMDL, the Regional Board must exercise its independent authority.

- 4. If a solution to an impairment is being implemented by a non-regulatory action of another entity, and the regional board finds that the solution will actually correct the impairment, the regional board may certify that the non-regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

Similar to subsection c., above, the Regional Boards may rely upon actions by non-regulatory entities, if the Regional Board makes findings, supported by substantial evidence in the record, that a program being implemented by a non-regulatory entity will be adequate to correct the impairment. The fact that the Regional Boards have limited resources to accomplish their water quality mission can and should be used as a basis to encourage interested persons to undertake to abate impairments in the time before the Regional Boards may otherwise be able to address them. For instance, several RWQCBs have had experience working with industry groups, both formally and informally, to develop education and self-regulation within a particular industry. Other organizations have become active in NPS pollution prevention and land restoration efforts through CWA §319(h) grants, State bond grants, or the State Revolving Fund loan program. Many of the partnerships formed to take advantage of these financial resources have developed into self-sustaining third-party organizations. Some are affiliated with RCDs or have developed as part of the Coordinated Resource Management Planning (CRMP) approach; others are watershed groups or have developed their own organizational structure based on other geographic or industry-specific factors. In some situations the organizations accomplish their goals through a mix of public and private partnership efforts. The RWQCB staff has worked with these groups at various levels. The RWQCBs have broad flexibility and discretion in fashioning TMDL implementation programs, and are encouraged to be as innovative and creative as possible, and, as appropriate, to build upon Third-Party Programs

II. Process for adopting TMDLs

Section 1. Definitions:

- a) Certification.** As used in this policy, the term “certification” shall refer to a formal attestation by a Regional Board that a specific program of implementation, proposed by another regulatory or non-regulatory entity, will be consistent with the assumptions and requirements of a Regional Board-established TMDL that is set at a level that will ensure attainment of water quality standards, considering seasonal variations and a margin of safety. The term “certify” or “certifies” shall refer to the act of issuing the certification. A certification under this policy shall not be deemed to confer any other form of certificate or create any other form of certification, including but not limited to those described in sections 1288 or 1341 of Title 33 of the United States Code.
- b) Loading capacity (LC).** The greatest amount of loading that a water can receive without violating water quality standards.
- c) Load allocation (LA).** The portion of a receiving water’s loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished. (40 CFR 130.2(g))

- d) **Waste Load allocation (WLA).** The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation (40 CFR 130.2(h)).
- e) **Margin of Safety (MOS).** The required component of the TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving waterbody (CWA section 303(d)(1)(C)). The MOS is normally incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models) and approved by EPA either individually or in state/EPA agreements. This may be referred to as an "implicit" MOS. If the MOS needs to be larger than that which is allowed through the conservative assumptions, additional MOS can be added as a separate component of the TMDL (in this case, quantitatively, a TMDL = LC = WLA + LA + MOS). When the MOS is expressed as a specific reservation or assignment of part of the LC, it may be referred to as an "explicit" MOS.
- f) **Total Maximum Daily Load (TMDL).** The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources and natural background, and a margin of safety (MOS). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Section 2. TMDLs are adopted with programs that implement correction of the impairment. TMDLs may be adopted in any of the following ways:

- a) The TMDL may be adopted with and reflected in assumptions underlying a basin plan amendment, or another regulation or policy for water quality control that is designed to guide the Regional Board in correcting the impairment
- b) The TMDL may be adopted with and reflected in assumptions underlying a permitting action, enforcement action, or another single regulatory action that is designed by itself to correct the impairment
- c) The TMDL may be adopted with and reflected in a resolution or order that certifies either that:
 - i) A regulatory program has been adopted and is being implemented by another state, regional, local, or federal agency, and the program will correct the impairment; or
 - ii) A non-regulatory program is being implemented by another entity, and the program will correct the impairment.
- d) Subsection c), above, shall not be construed as authorizing the Regional Board to delegate its authority over water quality control to another regulatory or non-regulatory entity. In all cases the Regional Board must determine the LC of the water body, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. The Regional Board must exercise its independent discretion to determine whether or not such alternative program is consistent with the LC. As such, any resolution under subsection c), above, must include specific findings, supported by substantial evidence in the record, that demonstrate each of the following about the regulatory or non-regulatory program:
 - i) The program is consistent with the assumptions and requirements of the TMDL;
 - ii) Sufficient mechanisms exist to provide reasonable assurances that the program will address the impairment in a reasonable period of time;

- iii) Sufficient mechanisms to enforce the program exist or the regional board otherwise has sufficient confidence that the program will be implemented, such that further regulatory action in the form of a TMDL implementation plan by the Regional Board is unnecessary and would be redundant.

The above findings will require a fact-specific inquiry, dependent upon the type of impairment at issue, the identity, authority, and interests of those proposing the alternative program, and a variety of other factors. A lower confidence that the program will remain in place and will succeed can be mitigated by findings that sufficient fallback provisions exist to ensure that the impairment will be addressed in a reasonable period of time if the program is unsuccessful. Such fallback provisions could include instructions that staff commence a regulatory program under section 2.a) or 2.b) above at a time-certain if the impairment has not then been addressed.

- e) Any certification under subdivision c) above, may only be issued and remains valid if:
 - i) A monitoring plan that addresses the impaired water has been adopted or approved by the Regional Board, and it is adhered to;
 - ii) The program contains conditions that require trackable progress, and such progress is tracked. A timeline must identify the point or points at which regulatory intervention and reversion to Regional Board direct oversight will be triggered if the pace of work lags or fails;
 - iii) The certification contains a provision setting forth that the it must be revoked by the Regional Board based upon its findings that the program has not been adequately implemented, is not achieving its goals, or is no longer adequate to restore water quality;
 - iv) For alternative programs intended to control non-point source contributions to an impairment, such programs comport with the requirements of the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, including, but not limited to, the Key Elements of an NPS Pollution Control Implementation Program.

Any interested party may file a petition with the State Board pursuant to Water Code section 13320 to review a Regional Board's failure to adequately ensure that the certification remains valid.

- f) A Regional Board may delegate the authority to make certifications under section 2.c) to its Executive Officer for non-controversial TMDLs.
- g) A certification under section 2.c), above, shall be valid only for the purpose of implementing TMDLs required by section 303(d) of the Clean Water Act. Such a certification shall not be deemed to constitute a "certification" as used in any other section of the Clean Water Act or as used in any other statute.
- h) A certification under section 2 c), above, shall include a date upon which the certification will expire, if not reissued. On or before the expiration date, the Regional Board shall review the actions taken to address the impaired waters, and may renew the certification if significant progress has been made to correct the impairment, or the Regional Board may direct staff to develop another regulatory solution to the impairment.
- i) When TMDLs are adopted under sections 2.b) or 2.c), above, the TMDLs must be referenced in the relevant Basin Plans before or during the next triennial review. (40 CFR 130.6(c).)

Section 3. State Board Review. The manner of review by the State Board shall depend upon and be consistent with the manner in which the TMDL has been adopted by the Regional Board.

- a) Basin Plan amendments are subject to State Board approval pursuant to Water Code section 13245.
- b) Permits and orders are subject to State Board review pursuant to Water Code section 13320.
- c) Interested persons may file a petition for State Board reconsideration of any resolution or order issuing or denying a certification under section 2.c) above, in the manner described in Division 3, Chapter 28, Article 6, of Title 23 of the California Code of Regulations, however, any such petition shall be filed not later than 30 days after the date of the certification resolution or order by the Regional Board.

Section 4. Transmittal to USEPA and Request for Approval. The TMDL shall be transmitted to USEPA for approval as follows:

- a) By the Division of Water Quality, for TMDLs adopted pursuant to Section 2.a).
 - i) The Division of Water Quality shall not transmit the TMDL for approval until the Office of Administrative Law has concluded any applicable review of the regulations implementing the TMDL.
- b) By the Regional Board's Executive Officer, for TMDLs adopted pursuant to Section 2.b) or 2.c).
 - i) The Division of Water Quality shall prepare a standard transmittal form for use by the Regional Boards.
 - ii) The Regional Board shall not transmit the TMDL for approval until either the time to file a petition for review with the State Board has lapsed, or the State Board has dismissed any petitions challenging, or has otherwise approved, the certification or order. The Regional Board may transmit the TMDL for approval if a petition is pending and either no request for a stay has been filed, or the State Board has denied the request for a stay.
 - iii) A copy of each transmittal by a Regional Board shall be sent to the Division of Water Quality.

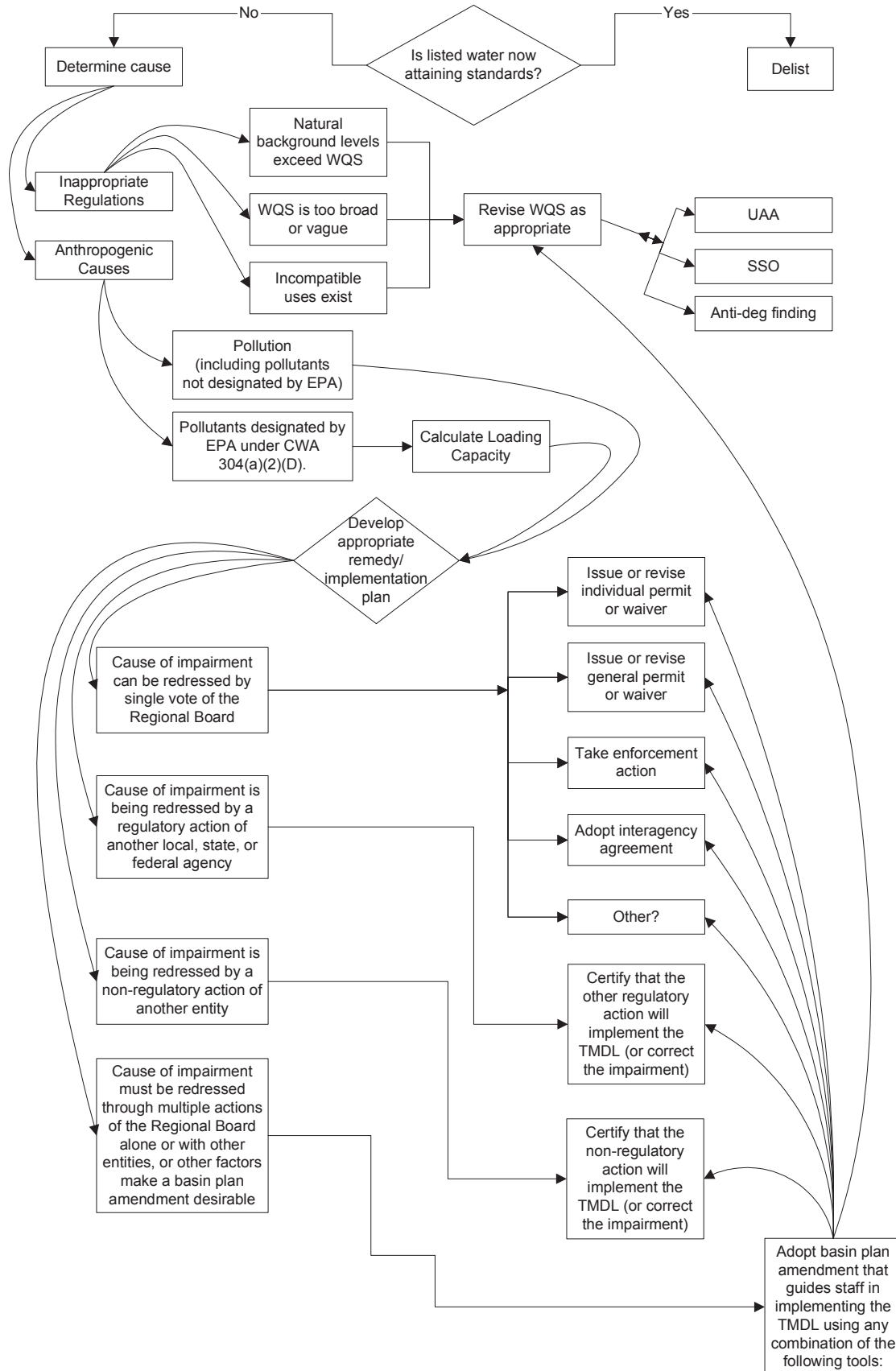
Section 5. Delisting.

- a) When a Regional Board determines that a water body is in fact attaining standards and is not threatened, the Regional Board may on its own motion entertain a resolution recommending the water body be delisted, in lieu of waiting until the next listing cycle. Given the process established by the 303(d) list policy to list and delist waters at regular intervals, failure to take action under this subsection in lieu of waiting until the next 303(d) listing cycle, shall not be deemed inappropriate or improper.
- b) No water body shall be deemed delisted pursuant to section 5.a), above, until the State Board has approved the recommendation, and the decision has been transmitted to, and thereafter approved by, USEPA.

Section 6. Existing Authority Preserved.

a) Nothing in this policy shall affect the responsibility of the State Board or any Regional Board to implement the provisions of an applicable Basin Plan or other policy for water quality control, and to ensure that all water quality standards are attained, whether or not a TMDL has yet been established for a given water body. Nor shall any provision of this policy be construed as limiting the authority of the State Board or any Regional Board with respect to any of its existing regulatory tools or processes. Furthermore, where multiple actions of a Regional Board are simply using existing regulatory or enforcement authorities to IMPLEMENT one or more existing regulatory standards, and/or prohibitions, no underground regulation problem is presented and no rulemaking is required because the regulatory standard, and/or prohibition has already been adopted through the proper rulemaking or legislative process.

Attachment A: Impaired Waters Regulatory Decision Tree



Note: After implementation of the chosen regulatory tool(s) the practitioner would start at the beginning of the decision tree to evaluate the effectiveness of the implementation program and, as appropriate, choose an alternative regulatory option to address the water body impairment

ATTACHMENT

9

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD
ORDER WQ 2015-0075

In the Matter of Review of

Order No. R4-2012-0175, NPDES Permit No. CAS004001

**WASTE DISCHARGE REQUIREMENTS FOR MUNICIPAL SEPARATE STORM SEWER
SYSTEM (MS4) DISCHARGES WITHIN THE COASTAL WATERSHEDS OF
LOS ANGELES COUNTY, EXCEPT THOSE DISCHARGES ORIGINATING FROM THE
CITY OF LONG BEACH MS4**

Issued by the
California Regional Water Quality Control Board,
Los Angeles Region

SWRCB/OCC FILES A-2236 (a)-(kk)

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board) reviews [Order No. R4-2012-0175](#) (NPDES Permit No. CAS004001) adopted by the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) on November 8, 2012. Order No. R4-2012-0175 regulates discharges of storm water and non-storm water from the municipal separate storm sewer systems (MS4s) located within the coastal watersheds of Los Angeles County, with the exception of the City of Long Beach MS4, and is hereinafter referred to as the “Los Angeles MS4 Order” or the “Order.” We received 37 petitions challenging various provisions of the Los Angeles MS4 Order. For the reasons discussed herein, we generally uphold the Los Angeles MS4 Order, but with a number of revisions to the findings and provisions in response to issues raised in the petitions and as a result of our own review of the Order.

I. BACKGROUND

The Los Angeles MS4 Order regulates discharges from the MS4s operated by the Los Angeles County Flood Control District, Los Angeles County, and 84 municipal permittees (Permittees) in a drainage area that encompasses more than 3,000 square miles and multiple watersheds. The Order was issued by the Los Angeles Water Board in

accordance with section 402(p)(3)(B) of the Clean Water Act¹ and sections 13263 and 13377 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act),² as a National Pollutant Discharge Elimination System (NPDES) permit to control storm water and non-storm water discharges that enter the area's water bodies from the storm sewer systems owned or operated by the multiple governmental entities named in the Order. The Los Angeles MS4 Order superseded Los Angeles Water Board [Order No. 01-182](#) (2001 Los Angeles MS4 Order), and is the fourth iteration of the NPDES permit for MS4 discharges in the relevant area.

The Los Angeles MS4 Order incorporates most of the pre-existing requirements of the 2001 Los Angeles MS4 Order, including the water quality-based requirement to not cause or contribute to exceedances of water quality standards in the receiving water. The Los Angeles MS4 Order also requires Permittees to comply with new water quality-based requirements to implement 33 watershed-based total maximum daily loads (TMDLs) for the region. The Order links both of these water quality-based requirements to the programmatic elements of the Order by allowing Permittees to comply with the water quality-based requirements, in part, by developing and implementing a watershed management program (WMP) or enhanced watershed management program (EWMP), as more specifically defined in the Order.

Following adoption of the Los Angeles MS4 Order, we received 37 timely petitions challenging various provisions of the Order and, in particular, the provisions implementing TMDLs and integrating water quality-based requirements and watershed-based program implementation. Several petitioners asked that their petitions be held in abeyance;³ however, due to the number of active petitions also seeking review, we declined to hold those petitions in abeyance at that time.⁴ Five petitioners additionally requested that we partially stay the Los Angeles MS4 Order. Following review, the Executive Director of the State Water Board denied the stay requests for failure to comply with the prerequisites for a stay as specified in California Code of Regulations, title 23, section 2053.

¹ 33 U.S.C. § 1342(p)(3)(B).

² Wat. Code, §§ 13263, 13377.

³ See Cal. Code Regs., tit. 23, § 2050.5, subd. (d).

⁴ By letter dated January 30, 2013, we provided an opportunity for petitioners to submit an explanation for why a petition should be held in abeyance notwithstanding the existence of the active petitions. In response, two petitioners, City of Signal Hill and the City of Claremont, argued that their petitions raised unique issues not common to the remaining petitions and therefore appropriate for abeyance. We thereafter denied their requests on July 29, 2013, finding that the unique issues could nevertheless be resolved concurrently with the issues in the other petitions. On October 9, 2013, the City of Claremont withdrew two of the claims in its petition.

We deemed the petitions complete by letter dated July 8, 2013, and, as permitted under our regulations,⁵ consolidated the petitions for review.

An issue front and center in the petitions is the appropriateness of the approach of the Los Angeles MS4 Order in addressing what we generally refer to as “receiving water limitations.” Receiving water limitations in MS4 permits are requirements that specify that storm water and non-storm water discharges must not cause or contribute to exceedances of water quality standards in the waters of the United States that receive those discharges. In precedential State Water Board [Order WQ 99-05](#) (*Environmental Health Coalition*), we directed that all MS4 permits contain specific language that explains how the receiving water limitations will be implemented. (For clarity, we refer to MS4 permit language that relates to implementation of the permit’s receiving water limitations as “receiving water limitations provisions.”) We held a workshop on November 20, 2012, concerning receiving water limitations in MS4 permits. The purpose of the workshop was to receive public comment on an issue paper discussing several alternatives to the receiving water limitations provisions currently included in MS4 permits as directed by Order WQ 99-05 (Receiving Water Limitations Issue Paper).⁶

Because the Los Angeles MS4 Order contains new provisions that authorize the Permittees to develop and implement WMP/EWMPs in lieu of requiring compliance with the receiving water limitations provisions, we view our review of the Order as an appropriate avenue for resolving some of the issues raised in our November 20, 2012 workshop. Through notice to all interested persons, we bifurcated the responses to the petitions and solicited two separate sets of responses: (1) Responses to address issues related to whether the WMP/EWMP alternatives contained in the Los Angeles MS4 Order are an appropriate approach to revising the receiving water limitations provisions in MS4 permits (August 15, 2013 Receiving Water Limitations Submissions); and (2) Responses to address all other issues raised in the petitions (October 15, 2013 Responses).⁷ We held a workshop on October 8, 2013, to hear public comment on the first set of responses.

⁵ Cal. Code Regs., tit. 23, § 2054.

⁶ Information on that workshop is available at http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml (as of Nov 18, 2014).

⁷ We requested the bifurcated responses initially by letter dated July 15, 2013. Subsequent letters on July 29, 2013, and September 18, 2013, clarified the nature of the submissions and extended the submission deadline for the second response.

State Water Board regulations generally require final disposition on petitions within 270 days of the date a petition is deemed complete.⁸ However, in this case, we required additional time to review the large number of issues raised in the petitions. When the State Water Board anticipates addressing a petition on the merits after the review period passes, it may indicate that it will review the matter on its own motion.⁹ On April 1, 2014, we adopted [Order WQ 2014-0056](#) taking up review of the issues in the petitions on our own motion.¹⁰

We now resolve the issues in the petitions with this order.

II. ISSUES AND FINDINGS

The 37 petitions raise over sixty contentions claiming deficiencies in the Los Angeles MS4 Order. This Order addresses the most significant contentions. To the extent petitioners raised issues that are not discussed in this Order, such issues are dismissed as not raising substantial issues appropriate for State Water Board review.¹¹

Before proceeding to the merits of the petitions, we will resolve several procedural issues.

Requests to Take Official Notice or Supplement the Record with Additional Evidence

We received a number of requests to take official notice of documents not in the administrative record of the adoption of the Los Angeles MS4 Order by the Los Angeles Water Board (hereinafter Administrative Record)¹² and a number of requests to admit supplemental evidence not considered by the Los Angeles Water Board.¹³ We reviewed the requests with

⁸ Cal. Code Regs., tit. 23, § 2050.5, subd. (b).

⁹ See Wat. Code, § 13320, subd. (a); Cal. Code Regs., tit. 23, § 2050.5, subd. (c).

¹⁰ To avoid premature litigation on the petition issues as a result of our review extending past the 270 day-regulatory review period, at our suggestion most of the petitioners asked that their petitions be placed in abeyance until adoption by the State Water Board of a final order. We granted those requests. Simultaneously with adopting this order, we are removing the petitions from abeyance and acting upon them.

¹¹ *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Bd.* (2004) 123 Cal.App.4th 1107, 1114; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

¹² The Administrative Record was prepared by the Los Angeles Water Board and is available at <http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/AdminRecordOrderNoR4_2012_0175/index.shtml> (as of Nov. 18, 2014).

¹³ Several requests for official notice or to admit supplemental evidence were received concurrently with submission of the petitions, with the August 15, 2013 Receiving Water Limitations Submissions, and with the October 15, 2013 Responses. Additional requests for official notice were submitted concurrently with comments on first and revised public drafts of this order and were opposed by several parties. (Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay, Jan. 21, 2015; Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay, June 2, 2015.) Although we have reviewed these additional requests for official notice, we have not granted the requests for the various reasons articulated in this section, in Section II.B.8, and in footnote 74.

consideration of whether they were appropriate for notice or admission based on the legal standards governing our proceedings¹⁴ and whether the documents would materially aid in our review of the issues in the proceedings. We grant the requests with regard to documents 1-7 below, and additionally take official notice on our own motion of documents 8, 9, and 10.¹⁵

1. [Order No. 2013-0001-DWQ](#), NPDES Permit for Storm Water Discharges from Small MS4s, adopted by State Water Board, February 5, 2013;¹⁶
2. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia issued by the United States Environmental Protection Agency (USEPA), November 9, 2012, and a responsiveness summary issued in support of its original adoption of the permit, October 7, 2011;¹⁷
3. Administrative Procedures Update Number 90-004 on Antidegradation Policy Implementation for NPDES Permitting, issued by the State Water Board, July 2, 1990;¹⁸
4. Chapter 7 of the NPDES Permit Writers' Manual, updated by USEPA, September 2010;¹⁹
5. Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA, August 8, 2012;²⁰

¹⁴ For official notice see Cal. Code Regs., tit. 23, § 648.2; Gov. Code, § 11515; Evid. Code, § 452. For admission of supplemental evidence see Cal. Code Regs., tit. 23, § 2050.6.

¹⁵ We note that two documents for which we received requests for official notice are already in the administrative record: USEPA, Memorandum Setting Forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (Nov. 12, 2010) (Administrative Record, section 10.II, RB-AR23962-23968); USEPA, Chapter 6 of the NPDES Permit Writers' Manual (updated Sept. 2010) (Administrative Record, section 10.IV, RB-AR24905-24932).

¹⁶ County of Los Angeles October 15, 2013 Response, Att. C; also available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/phsii2012_5th/order_final.pdf> (as of Nov. 18, 2014).

¹⁷ Los Angeles Water Board Request for State Water Board to Take Official Notice of Or Accept as Supplemental Evidence Exhibit A through SS (Oct. 15, 2013) (Los Angeles Water Board Request for Official Notice), Exh.'s A, B; also available at <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/MS4FinalLimitedModDocument/FinalModifiedPermit_10-25-12.pdf> and <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/FinalPermit2011/DCMS4FINALResponsivenessSummary093011.pdf> (as of Nov. 18, 2014).

¹⁸ Los Angeles Water Board Request for Official Notice, Exh.C; also available at <http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/apu_90_004.pdf> (as of Nov. 18, 2014).

¹⁹ Chapter 7 of USEPA's NPDES Permit Writers' Manual, EPA-833-K-10-001, September 2010 (NPDES Permit Writers' Manual) was submitted as Exhibit C to Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay Request for Official Notice (Dec. 10, 2012) (Environmental Petitioners' Request for Official Notice). The chapter may additionally be accessed through links at <<http://water.epa.gov/polwaste/npdes/basics/NPDES-Permit-Writers-Manual.cfm>> (as of Nov. 18, 2014).

6. Memorandum to the Water Management Division Directors, Regions I-X, and NPDES State Directors, issued by USEPA, 1989;²¹
7. “Guidance on Implementing the Antidegradation Provisions of 40 C.F.R. 131.12,” issued by USEPA, Region 9, June 3, 1987;²²
8. [Order WQ 2014-0077-DWQ](#), amending NPDES Statewide Storm Water Permit for State of California Department of Transportation, [Order 2012-0011-DWQ](#), adopted by State Water Board, May 20, 2014;²³
9. Statement from USEPA soliciting comments on the USEPA Memorandum Setting forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (November 12, 2010), issued March 17, 2011.²⁴
10. Memorandum, “Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,’” issued by USEPA, November 26, 2014.²⁵

In addition, we are incorporating the administrative record of the November 20, 2012 workshop on receiving water limitations, including the Receiving Water Limitations Issue Paper and comments by interested persons, into our record for the petitions on the Los Angeles MS4 Order.²⁶

(continued from previous page)

²⁰ Environmental Petitioners’ Request for Official Notice, Exh.B, available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

²¹ Environmental Petitioners’ Request for Official Notice, Exh.D; also available at <<http://www.epa.gov/npdes/pubs/owm0231.pdf>> (as of Nov. 18, 2014).

²² Environmental Petitioners’ Request for Official Notice, Exh.E; available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

²³ Available at <http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0077_dwq.pdf> (as of Nov. 18, 2014).

²⁴ Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).

²⁵ Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/EPA_SW_TMDL_Memo.pdf> (as of March 30, 2015).

²⁶ The Receiving Water Limitations Issue Paper and comments and workshop presentations by interested person are available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml>.

Among other requests, we are not granting the requests to take official notice of or supplement the Administrative Record with the notices of intent, workplans, draft programs, and other documents filed by Permittees toward development of WMPs/EWMPs and associated monitoring programs following adoption of the Los Angeles MS4 Order or comments submitted on those documents, or the conditional approvals of several of the programs. With regard to factual evidence regarding actions taken by Permittees to comply with the Los Angeles MS4 Order after it was adopted, we believe it appropriate to close the record with the adoption of the Los Angeles MS4 Order. However, we are keenly aware that the success of the Los Angeles MS4 Order in addressing water quality issues depends primarily on the careful and effective development and implementation of programs consistent with the requirements of the Order; we speak to that issue later in our discussion.

City of El Monte's Amended Petition

Petitioner City of El Monte (El Monte) timely filed a petition on December 10, 2012, challenging a number of provisions of the Los Angeles MS4 Order. Thereafter, on February 19, 2013, El Monte filed an amended petition, based on information it asserted was not available prior to the deadline for submission of the petition.

Water Code section 13320, subdivision (a) provides that a petition for review of a regional water quality control board (regional water board) action must be filed within 30 days of the regional water board's action.²⁷ The State Water Board interprets that requirement strictly and petitions filed more than 30 days from regional water board action are rejected as untimely. El Monte asserted that the two additional arguments raised in the amended petition were based on information that was not available prior to the deadline for submitting the petition and were therefore appropriate for State Water Board consideration.

Even if we were required by statute or regulation to accept amended petitions based on new information, here, El Monte's new arguments are not supported by information previously unavailable. First, El Monte argues that the Supreme Court's decision in *Los Angeles County Flood Control District v. Natural Resources Defense Council* (2013) 133 S.Ct. 710 invalidated certain provisions of the Los Angeles MS4 Order that require compliance with water quality standards and total maximum daily load requirements through receiving water monitoring. Contrary to El Monte's assertion, the decision by the Supreme Court did not invalidate any requirements of the Los Angeles MS4 Order and did not result in any changes to

²⁷ See also Cal. Code Regs., tit. 23, § 2050.

the Order. The Supreme Court decision, to the extent it applies to the legal issues before us in this matter, constitutes precedential case law and must be considered in our review of the Los Angeles MS4 Order, but it does not constitute new information that supports an amended petition.²⁸

Second, El Monte argues that the Los Angeles Water Board failed to consider various provisions of the California Watershed Improvement Act of 2009²⁹ when it adopted the Los Angeles MS4 Order. To the extent El Monte believed that the California Watershed Improvement Act was relevant to adoption of the Los Angeles MS4 Order, El Monte had the opportunity to raise that issue in comments before the Los Angeles Water Board and in its timely petition to the State Water Board. Having failed to raise the issue before the Los Angeles Water Board and in its timely petition, El Monte cannot raise the issue in an amended petition.³⁰

We reject El Monte's amended petition as untimely.

Environmental Petitioners' Motion to Strike

Petitioners Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay (Environmental Petitioners), submitted a motion on November 11, 2013, requesting that the State Water Board strike sections of the October 15, 2013 Responses by six petitioners (Motion to Strike). The relevant sections respond to a collateral estoppel argument made by the Environmental Petitioners in their August 15, 2013 Receiving Water Limitations Submission to the State Water Board. Several parties asserted in their petitions that requiring compliance with water quality standards in MS4 permits violates federal law or conflicts with prior State Water Board precedent. The Environmental Petitioners responded in their August 15, 2013 Receiving Water Limitations Submission that these arguments were barred by collateral estoppel because the claims were settled in prior court cases challenging the 2001 Los Angeles MS4 Order. Six of the October 15, 2013 Responses, namely those by the Cities of

²⁸ We note that the State Water Board has the option of allowing additional briefing when there are material legal developments concerning issues raised in a petition, but we did not find such briefing would aid review of the petitions in this case.

²⁹ Wat. Code, § 16100 et seq.

³⁰ In addition to being untimely, El Monte's argument lacks merit. The California Watershed Improvement Act of 2009 grants authority to local government permittees regulated by an MS4 permit to develop and implement watershed improvement plans, but does not limit the authority of a regional water board to impose terms related to watershed management in an MS4 permit. Further, the terms of the WMPs/EWMPs are largely consistent with the watershed improvement plans authorized by the Act, so a permittee can comply with the Los Angeles MS4 Order while also using the authority provided by the California Watershed Improvement Act of 2009 if it so chooses.

Arcadia, Claremont, Covina, Duarte and Huntington Park, San Marino et al.,³¹ and Sierra Madre, incorporated a response to the collateral estoppel argument.

We stated in a July 15, 2013 letter that “[i]nterested persons may not use the [October 15]³² deadline for responses on the remaining petition issues as an opportunity to respond to comments filed on the receiving water limitations approach.” We clarified further in a July 29, 2013 letter: “[W]hen submitting subsequent responses to the petitions in accordance with the [October 15] deadline, petitioners and interested persons should not raise new issues related to the specific questions regarding the watershed management program/enhanced watershed management program or respond to any August 15, 2013, submissions; however petitioners and interested persons will not be precluded from responding to specific issues raised in the original petitions on grounds that the issues are related to the receiving water limitations language.”

We find that the collateral estoppel responses by the six petitioners are disallowed by the direction we provided in our July 15 and July 29, 2013 letters. However, as will be apparent in our discussion in section II.A, we do not rely on the Environmental Petitioners’ collateral estoppel argument in resolving the petitions. Our determination that portions of the October 15, 2013 Responses are disallowed is, therefore, immaterial to the resolution of the issues.³³

Having resolved the procedural issues, we turn to the merits of the Petitions.

A. Implementation of the Iterative Process as Compliance with Receiving Water Limitations

The Los Angeles MS4 Order includes receiving water limitations provisions that are consistent with our direction in Order WQ 99-05 in Part V.A of the Los Angeles MS4 Order. Part V.A. provides, in part, as follows:

1. Discharges from the MS4 that cause or contribute to the violation of receiving water limitations are prohibited.

³¹ The cities of San Marino, Rancho Palos Verdes, South El Monte, Norwalk, Artesia, Torrance, Beverly Hills, Hidden Hills, Westlake Village, La Mirada, Vernon, Monrovia, Agoura Hills, Commerce, Downey, Inglewood, Culver City, and Redondo Beach submitted a joint October 15, 2013 Response.

³² The July 15, 2013 letter set a deadline of September 20, 2013, which was subsequently extended to October 15, 2013.

³³ In a November 21, 2013 letter, we indicated that we would consider the Motion to Strike concurrently with drafting of this Order, but that we would not accept any additional submissions in this matter, including any responses to the Motion to Strike. City of San Marino objected to the letter and submitted an opposition to the Motion to Strike. Several petitioners submitted joinders in City of San Marino’s motion. For the same reasons articulated above, we are not accepting these submissions; they would not affect our resolution of the issues.

2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible [footnote omitted], shall not cause or contribute to a condition of nuisance.
3. The Permittees shall comply with Parts V.A.1 and V.A.2 through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the storm water management program and its components and other requirements of this Order including any modifications. . . .³⁴

The petitioners that are permittees (hereinafter referred to as “Permittee Petitioners”)³⁵ argue that the above language either means, or should be read and/or clarified to mean, that good faith engagement in the requirements of Part V.A.3, traditionally referred to as the “iterative process,” constitutes compliance with Parts V.A.1. and V.A.2. The position put forth by Permittee Petitioners is one we took up when we initiated a process to re-examine the receiving water limitations and iterative process in MS4 permits statewide with our Receiving Water Limitations Issue Paper and the November 20, 2012 workshop. We summarize the law and policy regarding Permittee Petitioners’ position again here and ultimately disagree with Permittee Petitioners that implementation of the iterative process does or should constitute compliance with receiving water limitations.

The Clean Water Act generally requires NPDES permits to include technology-based effluent limitations and any more stringent limitations necessary to meet water quality standards.³⁶ In the context of NPDES permits for MS4s, however, the Clean Water Act does not explicitly reference the requirement to meet water quality standards. MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the Maximum Extent Practicable (MEP) in all cases, but requiring strict compliance with water quality standards (e.g., by imposing numeric effluent limitations) is at the discretion of the permitting agency.³⁷ Specifically the Clean Water Act states as follows:

Permits for discharges from municipal storm sewers –

. . .

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

³⁴ Los Angeles MS4 Order, Part V.A, pp. 38-39.

³⁵ For ease of reference, where an argument is made by multiple Permittee Petitioners, even if not by all, we attribute that argument to Permittee Petitioners generally, and do not list which of the 37 Permittee Petitioners in fact make the argument. Where only one or two Permittee Petitioners make a particular argument, we have identified the specific Permittee Petitioner(s).

³⁶ 33 U.S.C. §§ 1311, 1342(a).

³⁷ 33 U.S.C. § 1342(p)(3)(B); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.

(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as . . . the State determines appropriate for the control of such pollutants.³⁸

Thus, a permitting agency imposes requirements related to attainment of water quality standards where it determines that those provisions are “appropriate for the control of [relevant] pollutants” pursuant to the Clean Water Act municipal storm water provisions.

Under the Porter-Cologne Act, waste discharge requirements must implement applicable water quality control plans, which include the beneficial uses to be protected for a given water body and the water quality objectives reasonably required for that protection.³⁹ In this respect, the Porter-Cologne Act treats MS4 dischargers and other dischargers even-handedly and anticipates that all waste discharge requirements will implement the water quality control plans. However, when implementing requirements under the Porter-Cologne Act that are not compelled by federal law, the State Water Board and regional water boards (collectively, “water boards”) have some flexibility to consider other factors, such as economics, when establishing the appropriate requirements.⁴⁰ Accordingly, since the State Water Board has discretion under federal law to determine whether to require strict compliance with the water quality standards of the water quality control plans for MS4 discharges, the State Water Board may also utilize the flexibility under the Porter-Cologne Act to decline to require strict compliance with water quality standards for MS4 discharges.

We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,⁴¹ but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements. That iterative process involves reporting of the violation, submission of a report describing proposed improvements to BMPs

³⁸ 33 U.S.C. § 1342(p)(3)(B).

³⁹ Wat. Code, § 13263. The term “water quality standards” encompasses the beneficial uses of the water body and the water quality objectives (or “water quality criteria” under federal terminology) that must be met in the waters of the United States to protect beneficial uses. Water quality standards also include the federal and state antidegradation policy.

⁴⁰ Wat. Code, §§ 13241, 13263; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.

⁴¹ State Water Board Orders WQ 98-01 (*Environmental Health Coalition*), WQ 99-05 (*Environmental Health Coalition*), WQ 2001-15 (*Building Industry Association of San Diego*).

expected to better meet water quality standards, and implementation of these new BMPs.⁴² The current language of the existing receiving waters limitations provisions was actually developed by USEPA when it vetoed two regional water board MS4 permits that utilized a prior version of the State Water Board's receiving water limitations provisions.⁴³ In State Water Board Order WQ 99-05, we directed that all regional boards use USEPA's receiving water limitations provisions.

There has been significant confusion within the regulated MS4 community regarding the relationship between the receiving water limitations and the iterative process, in part because the water boards have commonly directed dischargers to achieve compliance with water quality standards by improving control measures through the iterative process. But the iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a "safe harbor" to MS4 dischargers. When a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen suit, regardless of whether or not the discharger is actively engaged in the iterative process.⁴⁴

The position that the receiving water limitations are independent from the provisions that establish the iterative process has been judicially upheld on several occasions. The receiving water limitations provisions of the 2001 Los Angeles MS4 Order specifically have been litigated twice, and in both cases, the courts upheld the provisions and the Los Angeles Water Board's interpretation of the provisions. In a decision resolving a challenge to the 2001 Los Angeles MS4 Order, the Los Angeles County Superior Court stated: "[T]he Regional [Water] Board acted within its authority when it included [water quality standards compliance] in

⁴² State Water Board Order WQ 99-05, pp. 2-3; see also State Water Board Order WQ 2001-15, pp. 7-9. Additionally, consistent with federal law, we found it appropriate to require implementation of BMPs in lieu of numeric water quality-based effluent limitations to meet water quality standards. See State Water Board Orders WQ 91-03 (*Citizens for a Better Environment*), WQ 91-04 (*Natural Resources Defense Council*), WQ 98-01, WQ 2001-15. This issue is discussed in greater detail in Section II.C. of this order.

⁴³ See State Water Board Orders WQ 99-05, WQ 2001-15.

⁴⁴ Several Permittee Petitioners have argued that the State Water Board's opinion in State Water Board Order WQ 2001-15 must be read to endorse a safe harbor in the iterative process. We disagree. Regardless, the State Water Board's position that the iterative process of the subject permit did not create a "safe harbor" from compliance with receiving water limitations was clearly established in subsequent litigation on that order. (See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (Super. Ct. 2003, No. GIC780263), *affd.* *Building Industry Assn. of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866.)

the Permit without a ‘safe harbor,’ whether or not compliance therewith requires efforts that exceed the ‘MEP’ standard.”⁴⁵ The lack of a safe harbor in the iterative process of the 2001 Los Angeles MS4 Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the County of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly as the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.⁴⁶ The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002.⁴⁷

While we reiterate that the judicial rulings have been consistent with the water boards’ intention and position regarding the relationship between the receiving water limitations and the iterative process, we acknowledge that some in the regulated community perceived the 2011 Ninth Circuit opinion in particular as a re-interpretation of that relationship. Our Receiving Water Limitations Issue Paper and subsequent workshop reflected our desire to re-examine the issue in response to concerns expressed by the regulated community in the aftermath of that ruling.

As stated above, both the Clean Water Act and the Porter-Cologne Act afford some discretion to not require strict compliance with water quality standards for MS4 discharges. In each of the discussed court cases above, the court’s decision is based on the specific permit language; thus the cases do not address our authority with regard to requiring compliance with water quality standards in an MS4 permit as a threshold matter, and they do not require us to continue to exercise our discretion as we decided in State Water Board Order

⁴⁵ *In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase I Trial on Petitions for Writ of Mandate, pp. 4-5, 7. The decision was affirmed on appeal (*County of Los Angeles v. State Water Resources Control Board* (2006) 143 Cal.App.4th 985); however, this particular issue was not discussed in the court of appeal’s decision.

⁴⁶ *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2011) 673 F.3d. 880, rev’d on other grounds sub nom. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2013) 133 S.Ct. 710, mod. by *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135.

⁴⁷ *Building Industry Assn. of San Diego County, supra*, 124 Cal.App.4th 866; *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

WQ 99-05. Although it would be inconsistent with USEPA's general practice of requiring compliance with water quality standards over time through an iterative process,⁴⁸ we may even have the flexibility to reverse⁴⁹ our own precedent regarding receiving water limitations and receiving water limitations provisions and make a policy determination that, going forward, we will either no longer require compliance with water quality standards in MS4 permits, or will deem good faith engagement in the iterative process to constitute such compliance.⁵⁰

However, with this Order, we now decline to do either. As the storm water management programs of municipalities have matured, an increasing body of monitoring data indicates that many water quality standards are in fact not being met by many MS4s. The iterative process has been underutilized and ineffective to date in bringing MS4 discharges into compliance with water quality standards. Compliance with water quality standards is and should remain the ultimate goal of any MS4 permit. We reiterate and confirm our determination that provisions requiring compliance with receiving water limitations are "appropriate for the control of . . . pollutants" addressed in MS4 permits and that therefore, consistent with our authority under the Clean Water Act, we will continue to require compliance with receiving water limitations.⁵¹

⁴⁸ See, e.g. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia, *supra*, fn. 17.

⁴⁹ Of course any change of direction would be subject to ordinary principles of administrative law. (See Code Civ. Proc., § 1094.5, subd. (b).)

⁵⁰ As such, it is not necessary to address the collateral estoppel arguments raised by the Environmental Petitioners and opposed by Permittee Petitioners. We agree that it is settled law that we have the discretion to require compliance with water quality standards in an MS4 permit under federal and state law. We also agree that it is settled law that the receiving water limitations provisions currently spelled out in our MS4 permits do not carve out a safe harbor in the iterative process. But the question for us is whether we should continue to exercise our discretion to utilize the same approach to receiving water limitations established under our prior precedent, or proceed in a new direction.

⁵¹ Several Permittee Petitioners argued in comments submitted on the first draft of this order that, because we find that we have some discretion under Clean Water Act section 402(p)(3) to not require compliance with receiving water limitations, the Los Angeles Water Board's action in requiring such compliance -- and our action in affirming it -- is pursuant to state authority. (See, e.g., Cities of Arcadia, Claremont, and Covina, Comment Letter, Jan. 21, 2015.) The Permittee Petitioners argue that the action is therefore subject to evaluation in light of the factors set out in Water Code section 13263 and 13241 pursuant to *City of Burbank*, *supra*, 35 Cal.4th 613. Under *City of Burbank*, a regional water board must consider the factors specified in section 13241 when issuing waste discharge requirements under section 13263, subdivision (a), but only to the extent those waste discharge requirements exceed the requirements of the federal Clean Water Act. (35 Cal.4th at 627.) Nowhere in our discussion in this section do we mean to disavow either that the Los Angeles Water Board acted under federal authority to impose "such other provisions as . . . determine[d] appropriate for the control of . . . pollutants" in adopting the receiving water limitations provisions of the Los Angeles MS4 Order in the first instance or that we are acting under federal authority in upholding those provisions. (33 U.S.C. § 1342(p)(3)(B)(iii).) The receiving water limitations provisions do not exceed the requirements of federal law. We nevertheless also point out that the Los Angeles Water Board engaged in an analysis of the factors under section 13241 when adopting the Order. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-139 to F-155.)

As we explained in 2001, “[u]rban runoff is causing and contributing to impacts on receiving waters throughout the state and impairing their beneficial uses.”⁵² More than a decade later, this is still true. By definition, many of our urban waterways will never attain water quality standards and fully realize their beneficial uses if municipal runoff is allowed to continue to cause or contribute to exceedances of water quality standards. Further, the efforts of other dischargers who are required to not cause or contribute to exceedances of water quality standards would be largely in vain if we did not regulate MS4 dischargers with a somewhat even hand.

Such an approach is additionally consistent with the Porter-Cologne Act’s emphasis on water quality control plans as the cornerstone of water quality planning and regulation and the act’s expectation that all waste discharge requirements will implement the water quality control plans. We believe that direct enforcement of water quality standards is necessary to protect water quality, at a minimum as a back-stop where dischargers fail to meet requirements of the Order designed to achieve progress toward meeting the standards. We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards. We accordingly also decline to direct any revisions to the receiving water limitations provisions of the Los Angeles MS4 Order, which are consistent with our precedential language.⁵³

Yet, we are sympathetic to the assertions made by MS4 dischargers that the receiving water limitations provisions mandated by our Order WQ 99-05 may result in many years of permit noncompliance, because it may take years of technical efforts to achieve compliance with the receiving water limitations, especially for wet weather discharges.

⁵² State Water Board Order WQ 2001-15, p. 7.

⁵³ We disagree with Permittee Petitioners’ argument that the receiving water limitations in Part V.A of the Los Angeles MS4 Order are confusing, unclear, or overbroad, because they prohibit causing or contributing to a violation of a receiving water limitation rather than a violation of water quality standards. The Los Angeles Water Board defines “receiving water” as “[a] ‘water of the United States’ in to which waste and/or pollutants are or may be discharged.” (Los Angeles MS4 Order, Att. A., p. A-16.) The Los Angeles Water Board further defines “receiving water limitations” as “[a]ny applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion, for the receiving water as contained in Chapter 3 or 7 of the Water Quality Control Plan for the Los Angeles Region (Basin Plan), water quality control plans or policies adopted by the State Water Board, or federal regulations, including but not limited to, 40 CFR §131.38.” (*Ibid.*) Receiving water limitations are therefore the water quality standards, including water quality objectives and criteria, that apply to the receiving water as expressed in the water quality control plan for the region, statewide water quality control plans that specify objectives for water bodies in the region, State Water Board policies for water quality control, and federal regulations.

Accordingly, we believe that the MS4 permits should incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.

With the WMP/EWMP provisions of the Los Angeles MS4 Order, the Los Angeles Water Board is striving to allow one such alternative compliance path. As such, the fundamental issue for review before us in this matter is whether the Los Angeles MS4 Order's WMP/EWMP provisions constitute a legal and technically sound compliance alternative for achieving receiving water limitations. We discuss and resolve this issue in the next section.

B. WMP/EWMP as Alternative Compliance Options for Complying with Receiving Water Limitations

The WMP/EWMP provisions allow Permittees to choose an integrated and collaborative watershed-based approach to meeting the requirements of the Los Angeles MS4 Order, including the receiving water limitations. Permittees develop a plan, either collaboratively or individually, that addresses water quality priorities within a watershed. Permittees first prioritize water quality issues within each watershed. Permittees may use the WMP/EWMP to address water body-pollutant combinations for which a TMDL has been developed, giving highest priority to those with interim and final compliance deadlines within the permit term. Permittees may also address water body-pollutant combinations for which no TMDL has been developed, but where the water body is impaired or shows exceedances of the standards for the relevant pollutant from an MS4 source. Once prioritization is completed, Permittees assess the sources of the pollutants and select watershed strategies that are designed to eliminate non-storm water discharges to the MS4 that are a source of pollutants, that meet all applicable TMDL-derived interim and final water quality-based effluent limitations (WQBELs) and/or limitations to be met in the receiving water (referred to herein as "other TMDL-specific limitations")⁵⁴ pursuant to corresponding compliance schedules, and that ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations. Except as described below for storm water retention projects, Permittees conduct a "reasonable assurance analysis" for each water body-pollutant combination incorporated into the

⁵⁴ Some of the TMDL limitations of the Los Angeles MS4 Order are expressed not as WQBELs but as standards to be met in the receiving water. The Los Angeles MS4 Order refers to these limitations as "receiving water limitations;" however, in order to avoid confusion with the general receiving water limitations in Part V.A., we will use the term "other TMDL-specific limitations." Accordingly, while the Los Angeles MS4 Order uses the term "receiving water limitations" to refer to both the receiving water limitations in part V.A and some of the TMDL-based requirements in Attachments L-R, when we use the term we refer only to the receiving water limitations in part V.A.

WMP/EWMP to demonstrate the ability of the program to meet those objectives. Permittees additionally implement an integrated monitoring and assessment program to determine progress, adapting strategies and measures as necessary.⁵⁵

In addition to all the requirements above, for those Permittees that choose to develop and implement an EWMP, the EWMP provisions also require that Permittees collaborate on multi-benefit regional projects and, wherever feasible, retain all non-storm runoff, as well as all storm water runoff from the 85th percentile 24-hour storm event (hereinafter “storm water retention approach”) for the drainage areas tributary to the projects.⁵⁶

The primary controversy concerning the WMP/EWMP provisions of the Los Angeles MS4 Order is the manner in which they interact with the receiving water limitations and the WQBELs and other TMDL-specific limitations. Under certain conditions detailed in the Order, Permittees may be deemed in compliance with the receiving water limitations and the WQBELs and other TMDL-specific limitations by fully implementing the WMP/EWMP, rather than by demonstrating that the receiving water limitations and the WQBELs and other TMDL-specific limitations have actually been achieved. Specifically:

1. Permittees that develop and implement a WMP/EWMP and fully comply with all requirements and dates of achievement for the WMP/ EWMP as established in the Los Angeles MS4 Order, are deemed to be in compliance with the receiving water limitations in Part V.A for the water body-pollutant combinations addressed by the WMP/EWMP.⁵⁷

2. Permittees fully in compliance with the requirements and dates of achievement of the WMP/EWMP are deemed in compliance with the *interim* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the WMP/EWMP.⁵⁸

3. Permittees implementing an EWMP and utilizing the storm water retention approach in a drainage area tributary to the applicable water body are deemed in compliance with the *final* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the storm water retention approach.⁵⁹

⁵⁵ Los Angeles MS4 Order, Part VI.C., pp. 49-67.

⁵⁶ *Id.*, Part VI.C.1.g., pp. 48-49.

⁵⁷ *Id.*, Part VI.C.2.b., p. 52.

⁵⁸ *Id.*, Parts VI.C.3.a., p. 53, VI.E.2.d.i.4., pp. 143-44. The Los Angeles MS4 Order establishes separate requirements for Trash TMDLs and the WMP/EWMP are not a means of achieving compliance with the Trash TMDL provisions. (See Part VI.E.5, pp. 147-154.) References to TMDLs in this section exclude the Trash TMDLs.

⁵⁹ *Id.*, Part VI.E.2.e.i.(4), p. 145. As with Part VI.E.2.d.i.4, this Part does not apply to Trash TMDLs.

4. Because the Order additionally provides that full compliance with the general TMDL requirements in Part VI.E and the WQBELs and other TMDL-specific limitations in Attachments L through R constitutes compliance with the receiving water limitations in V.A for the specific pollutants addressed by the relevant TMDL,⁶⁰ provisions 2 and 3 above also constitute compliance with the receiving water limitations for the particular water body-pollutant combinations.

5. Finally, Permittees that have declared their intention to develop a WMP/EWMP may be deemed in compliance with receiving water limitations and with interim WQBELs with compliance deadlines occurring prior to approval of the WMP/EWMP if they meet certain conditions during the development phase.⁶¹

Both Environmental Petitioners and Permittee Petitioners put forth a number of arguments to the effect that the WMP/EWMP provisions of the Los Angeles MS4 Order are contrary to federal and state law or reflect poor policy. We discuss each argument below.

1. Anti-backsliding

The Environmental Petitioners argue that the inclusion of the WMP/EWMP in the Los Angeles MS4 Order violates the anti-backsliding provisions of the Clean Water Act and of the federal regulations.⁶² The Clean Water Act generally prohibits the relaxation of an effluent limitation established in an NPDES permit when that permit is renewed; the federal regulations include similar provisions. The Environmental Petitioners argue that the WMP/EWMP of the Los Angeles MS4 Order, by allowing a discharger to be deemed in compliance with receiving water limitations, even where a discharger may in fact be causing or contributing to an exceedance of a water quality standard, represent a relaxation of the receiving water limitations provisions contained in the 2001 Los Angeles MS4 Order.⁶³

We do not agree with the Environmental Petitioners that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the anti-backsliding provisions of either the Clean Water Act or the federal regulations. Anti-backsliding provisions are an important aspect

⁶⁰ *Id.*, Part VI.E.2.c.ii., p. 143. Although this provision reflects a departure from provisions in previous MS4 permits, the provision has not generated controversy and has not been contested in the petitions. The State Water Board supports this provision in MS4 permits, as discussed at section II.B.5.b. of this order.

⁶¹ *Id.*, Parts VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.

⁶² 33 U.S.C. § 1342(o); 40 C.F.R. §122.44(f).

⁶³ The receiving water limitations of the 2001 Los Angeles MS4 Order (like the receiving water limitations in Section V.A. of the Los Angeles MS4 Order) were modeled on the precedential language in State Water Board Order WQ 99-05.

of the Clean Water Act that generally promote continued progress toward clean water, but the provisions do not apply in all circumstances and are subject to certain exceptions. The 2001 Los Angeles MS4 Order required compliance with receiving water limitations, directed Permittees to achieve those limitations through the iterative process, but retained the Los Angeles Water Board's discretion to enforce compliance with the receiving water limitations at any time. The Los Angeles MS4 Order requires compliance with receiving water limitations, but allows implementation of control measures through the WMPs/EWMPs to constitute such compliance, and reserves direct enforcement of the receiving water limitations to situations where a permittee fails to comply with the WMP/EWMP provisions. The approaches under the prior and current orders are designed to achieve the same results – compliance with receiving water limitations – but through distinct paths that are not easily comparable for purposes of the specific, technical anti-backsliding requirements laid out in federal law.⁶⁴ We nevertheless discuss the provisions below.

The Clean Water Act contains both statutory anti-backsliding provisions in section 402(o) and regulatory anti-backsliding provisions in 40 C.F.R. section 122.44(f). The Clean Water Act's statutory prohibition against backsliding applies under a narrow set of criteria specified in Clean Water Act section 402(o). First, section 402(o) prohibits relaxing effluent limitations originally established based on best professional judgment, when there is a newly revised effluent limitation guideline.⁶⁵ The WMP/EWMP is not derived from an effluent limitation guideline, so this first prohibition is inapplicable. Second, section 402(o) prohibits relaxing effluent limitations imposed pursuant to Clean Water Act sections 301(b)(1)(C) or 303(d) or (e).⁶⁶ The receiving water limitations provisions in the 2001 Los Angeles MS4 Order were not

⁶⁴ Responding to an argument that NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia violated anti-backsliding requirements by removing certain numeric limitations in the prior permit, USEPA stated: "The Commenter implies that a Permit that replaces a numeric effluent limit with a non-numeric one is somehow automatically less stringent on that parameter. However, the narrative requirement only violates the anti-backsliding prohibition if the two provisions are comparable. . . . In this case, the two provisions are not comparable: EPA has determined that compliance with the performance standards in the Final Permit will result in more water quality protections for the DC MS4's receiving streams than did the previous aggregate numeric limit." (Responsiveness Summary, p. 84, *supra*, fn.17, citing *Communities for a Better Environment v. State Water Resources Control Bd.* (2005) 132 Cal. App. 4th 1313.)

⁶⁵ 33 U.S.C. § 1342(o)(1) ("In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 1314 (b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.").

⁶⁶ *Ibid.* ("In the case of effluent limitations established on the basis of section 1311 (b)(1)(C) or section 1313 (d) or (e) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313 (d)(4) of this title.").

established based on either section 301(b)(1)(C) or section 303(d) or (e), so this prohibition on backsliding is inapplicable.⁶⁷ The receiving water limitations provisions in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C),⁶⁸ and are accordingly not subject to the anti-backsliding requirements of section 402(o).

With respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(l), the non-applicability is less clear cut. USEPA promulgated 40 Code of Federal Regulations section 122.44(l)(1) and its predecessor anti-backsliding regulations prior to the Water Quality Act of 1987, which established the municipal permitting requirements of section 402(p)(3)(B). There is ample regulatory history to demonstrate USEPA's intent in establishing the anti-backsliding policy and regulations with respect to evolving technology standards for traditional point sources.⁶⁹ We have found no definitive guidance, however, since that time from USEPA or the courts applying the general provisions of section 122.44(l) in the context of municipal storm water permits.⁷⁰ Further, we have previously noted that anti-backsliding principles may be difficult to assess in the context of non-

⁶⁷ The Environmental Petitioners do not argue that the Los Angeles MS4 Order is contrary to Clean Water Act section 303(d)(4) (33 U.S.C. § 1313(d)(4)), which also sets out anti-backsliding requirements. Section 303(d)(4) sets out the conditions under which effluent limitations based on TMDL wasteload allocations may be relaxed. Specifically, effluent limitations for a discharge impacting an impaired water body where standards have not yet been attained may only be relaxed if either the cumulative effect of the revisions still assures the attainment of the water quality standards or the designated use that is not being attained is removed. (33 U.S.C. § 1313(d)(4)(A).) Where a water body has attained standards, effluent limitations may only be relaxed consistent with the federal antidegradation policy. (33 U.S.C. § 1313(d)(4)(B).)

⁶⁸ *Defenders of Wildlife, supra*, 191 F.3d at pp. 1165-1166.

⁶⁹ See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979) (describing codification of predecessor regulation codified at 40 C.F.R. 122.15(i).) In the context of municipal storm water, the MEP standard is the technology standard; the record here supports that MEP, as reflected in the permit conditions, has evolved since the issuance of the 2001 Los Angeles MS4 Order to become more stringent. (See, e.g., Los Angeles MS4 Order, Part VI.D.9.h.vii., p.132, compared to 2001 Los Angeles MS4 Order, Part 4.F.5.c., pp.48-49 [trash controls]; Los Angeles MS4 Order, Part VI.D.7.c., pp. 97-109, as compared to 2001 Los Angeles MS4 Order, Part 4.D.3., pp.36-37 [new development/redevelopment project performance criteria]; Los Angeles MS4 Order, Part VI.D.8.d., pp.113-114, as compared to 2001 Los Angeles MS4 Order, Part 4.E., pp.42-45 [requirements for construction sites less than one acre].)

⁷⁰ As requested by the Environmental Petitioners, we took official notice of a Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA Region III on August 8, 2012. (See fn. 19). We acknowledge that the letter states at page 3 that a provision in the Prince George County, Maryland, Phase I MS4 draft permit allowing for more time to complete tasks that were required under the previous permit constituted backsliding. The letter refers in passing to section 122.44(l)(1), but the letter has no regulatory effect and, further, is devoid of any analysis. The Environmental Petitioners have also pointed us to discussion of the regulatory anti-backsliding provisions in the NPDES Permit Writers' Manual. (NPDES Permit Writers' Manual, p. 7-4.) The relevant section of the NPDES Permit Writers' Manual does not explicitly distinguish between municipal storm water permits and traditional NPDES Permits in its discussion of the applicability of regulatory anti-backsliding provisions; however, nor does it specifically direct application of the anti-backsliding regulatory provisions to municipal storm water permits. We do not find this discussion to be to be determinative on the issue.

quantitative, non-numeric requirements such as BMPs and plans.⁷¹ It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because, assuming for the sake of argument they do apply, the WMP/EWMP provisions would qualify for an exception to backsliding as discussed below.

Even if the receiving water limitations in MS4 permits could be considered subject to the anti-backsliding requirements of the Clean Water Act or the federal regulations, backsliding would be permissible based on the new information available to the Los Angeles Water Board when it developed and adopted the Los Angeles MS4 Order. The Clean Water Act and federal regulations contain exceptions to the anti-backsliding requirements where new information is available to the permitting authority that was not available at the time of the issuance of the prior permit and that would have justified the imposition of less stringent effluent limitations at that time.⁷² The Los Angeles Water Board makes a compelling argument in its October 15, 2013 Response that the development of 33 watershed-based TMDLs adopted since 2001, the inclusion and implementation of three of those TMDLs in the 2001 Los Angeles MS4 Order, and the TMDL-specific and general monitoring and analysis during implementation, have made new information available to the Los Angeles Water Board that fundamentally shaped the WMP/EWMP alternative of the Los Angeles MS4 Order. The Los Angeles Water Board states that the new information resulted in a new understanding that “time to plan, design, fund, operate and maintain [best management practices (BMPs)] is necessary to attain water quality improvements, and these BMPs are best implemented on a watershed scale.”⁷³ The Los Angeles Water Board further points out that, in terms of water supply, there has been a paradigm shift in the last decade from viewing storm water as a liability to viewing it as a regional asset, and that the Los Angeles MS4 Order was drafted to incorporate this new paradigm into its structure.

The WMP/EWMP approach represents a comprehensive attempt to implement the Board’s new understanding regarding how to make progress toward achieving water quality

⁷¹ See Order WQ 96-13 (*Save San Francisco Bay Association*) at pp. 8-10. Although the relevant portion of that decision primarily concerned Clean Water Act section 402(o), its analysis is equally instructive with respect to 40 C.F.R. section 122.44(l). (In passing, we note that the order appears to assume that the permit’s water quality-based requirements for the MS4 permit were derived pursuant to section 301(b)(1)(C); however, that assumption is in error based on the *Defenders of Wildlife* decision and subsequent State Water Board precedent.)

⁷² See 33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1) (anti-backsliding does not apply if the circumstances on which the previous permit was based have materially and substantially changed and would constitute cause for permit modification under 40 C.F.R. section 122.62); 40 C.F.R. § 122.62(a)(2) (stating that new information not available at the time the previous permit was issued is cause for modification); see also 40 C.F.R. §122.44(l)(2)(i)(B)(1).

⁷³ Los Angeles Water Board October 15, 2013 Response, p. 51.

standards as well as supporting the development of new water supplies.⁷⁴ The anti-backsliding requirements of the Clean Water Act and the federal regulations thus did not foreclose the incorporation of the WMP/EWMP alternatives into the Los Angeles MS4 Order even though the alternatives allow additional time to achieve receiving water limitations as compared to the immediate compliance required under the 2001 Los Angeles MS4 Order.

We shall amend Finding II.N. and Part III.D.4, page F-20, of Attachment F, Fact Sheet, as follows:

Finding II.N:

N. Anti-Backsliding Requirements. Section 402(o)(2) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit. **The Fact Sheet of this Order contains further discussion regarding anti-backsliding.**

Attachment F, Fact Sheet, Part III.D.4:

4. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. ~~All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit.~~ **While this Order allows implementation of Watershed Management Plans/EWMPs to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding availability of additional time to come into compliance with receiving water limitations, does not violate the anti-backsliding provisions. The receiving**

⁷⁴ The Environmental Petitioners argue that information relied on to develop the WMP/EWMP approach was available to the Los Angeles Water Board at the time of the issuance of the 2001 Los Angeles MS4 Order, since regional and watershed based strategies and technologies in storm water planning, as well as the potential benefits of storm water for water supply, were considered prior to the last permit cycle. Similarly, the Environmental Petitioners argue that some of the data gathered through TMDL development was through the process of assessing impairments and through preparing drafts of the TMDL and was therefore available to the Los Angeles Water Board in 2001. (Environmental Petitioners, Written Comments, Jan. 21, 2015, pp. 15-17, 23-25.) The Environmental Petitioners have asked us to take official notice of several documents that support these assertions. It is not necessary for us to do so because we do not disagree with the Environmental Petitioners that some of the information that the Los Angeles Water Board has cited in support of an exception to the anti-backsliding requirements was available at the time of the adoption of the 2001 Los Angeles MS4 Order. We nevertheless concur with the Los Angeles Water Board that the more than a decade of implementation of storm water requirements, as well as the development and implementation of TMDL requirements, since 2001, has, as a whole, fundamentally reshaped our understanding of the physical and time scale on which such measures must be implemented to bring MS4s into compliance with receiving water limitations. Further, we find that all regional water boards are informed by the information gained in the Los Angeles region, so that any regional water board that adopts an alternative compliance path in a subsequent Phase I permit would not be in violation of anti-backsliding requirements, regardless of the particular storm water permitting history of that region.

water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act rather than based on best professional judgment, or based on section 301(b)(1)(C) or sections 303(d) or (e), and are accordingly not subject to the anti-backsliding requirements of section 402(o). Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(l), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional point sources. (See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979)). It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because the WMP/EWMP provisions qualify for an exception to backsliding as based on new information. The Watershed Management Plan/EWMP provisions of this Order were informed by new information available to the Board from experience and knowledge gained through the process of developing 33 watershed-based TMDLs and implementing several of the TMDLs since the adoption of the previous permit. In particular, the Board recognized the significance of allowing time to plan, design, fund, operate and maintain watershed-based BMPs necessary to attain water quality improvements and additionally recognized the potential for municipal storm water to benefit water supply. Thus, even if the receiving water limitations are subject to anti-backsliding requirements, they were revised based on new information that would support an exception to the anti-backsliding provisions. (33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1); 40 C.F.R. §122.44(l)(2)(i)(B)(1)).

2. Antidegradation

The Environmental Petitioners argue that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the federal and state antidegradation policies.⁷⁵ The federal and state antidegradation policies generally require that the existing quality of water bodies be maintained, unless degradation is justified through specific findings. At a minimum, any degradation may not lower the quality of the water below the water quality standards.⁷⁶

The federal and state antidegradation policies are not identical; however, where the federal antidegradation policy is applicable, the State Water Board has interpreted State Water Board Resolution No. 68-16, the state antidegradation policy, to incorporate the federal antidegradation policy.⁷⁷ In the context of the Los Angeles MS4 Order, a federal NPDES permit, compliance with the federal antidegradation policy would require consideration of the following: First, the Los Angeles MS4 Order must ensure that “existing instream uses and the level of

⁷⁵ 40 C.F.R. § 131.12; State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16).

⁷⁶ *Ibid.*

⁷⁷ State Water Board Order WQ 86-17 (*Fay*), pp. 16-19.

water quality necessary to protect the existing uses” is maintained and protected.⁷⁸ Second, if the baseline quality of a water body for a given constituent “exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected” through the requirements of the Los Angeles MS4 Order unless the Los Angeles Water Board makes findings that (1) any lowering of the water quality is “necessary to accommodate important economic or social development in the area in which the waters are located;” (2) “water quality adequate to protect existing uses fully“ is assured; and (3) “the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control” are achieved.⁷⁹

The Los Angeles MS4 Order must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy.⁸⁰ In particular, the Los Angeles Water Board must find that not only present, but also anticipated future uses of water are protected, and must ensure “best practicable treatment or control” of the discharges.⁸¹ The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.⁸²

⁷⁸ 40 C.F.R. § 131.12(a)(1). This provision has been interpreted to mean that, “[i]f baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives.” (State Water Board, Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), p. 4.) This provision is completely consistent with, and implemented by, the receiving water limitations provisions discussed above.

⁷⁹ 40 C.F.R. § 131.12(a)(2); see also State Water Board Resolution No. 68-16, Resolve 2. The federal regulations additionally require strict maintenance of water quality for “outstanding national resources.” (40 C.F.R. § 131.12(a)(3).) There are no designated outstanding national resource waters covered by the Los Angeles MS4 Order.

⁸⁰ See State Water Board Order WQ 86-17 (*Fay*), p. 23, fn. 11.

⁸¹ State Water Board Resolution No. 68-16, Resolve 2. Best practicable treatment or control is not defined in Resolution No. 68-16; however, the State Water Board has evaluated what level of treatment or control is technically achievable using “best efforts.” (See State Water Board Orders WQ 81-5 (*City of Lompoc*), WQ 82-5 (*Chino Basin Municipal Water District*), WQ 90-6 (*Environmental Resources Protection Council*).) A Questions and Answers document on Resolution No. 68-16 by the State Water Board states as follows: “To evaluate the best practicable treatment or control method, the discharger should compare the proposed method to existing proven technology; evaluate performance data, e.g. through treatability studies; compare alternative methods of treatment or control; and/or consider the method currently used by the discharger or similarly situated dischargers . . . The costs of the treatment or control should also be considered . . .” (Questions and Answers, Resolution No. 68-16, State Water Board (Feb. 16, 1995), pp. 5-6.)

⁸² APU 90-004, p.4. The baseline for application of the federal antidegradation policy is 1975. For state antidegradation requirements, see also *Asociacion de Gente Unida por el Agua v. Central Valley Water Board* (2012) 210 Cal.App.4th 1255,1270. The baseline for the application of the state antidegradation policy is generally the highest water quality achieved since 1968. However, where a water quality objective for a particular constituent was adopted after 1968, the baseline for that constituent is the highest water quality achieved since the adoption of the (*Continued*)

The Los Angeles MS4 Order contains a conclusory antidegradation finding, but the Fact Sheet contains additional discussion.⁸³ The Fact Sheet discussion essentially conveys that, where there are high quality waters in the region, the antidegradation requirements are met because the Order requires best practicable treatment or control in the form of MEP and water quality standards compliance and, further, where the water quality is already impaired, the Order requires implementation of TMDL requirements to achieve water quality standards over time. The Fact Sheet also finds that the Los Angeles MS4 Order does not authorize an increase in waste discharges. The Los Angeles Water Board argues that it was not required to make more detailed findings because, using its best professional judgment and available data, it concluded that the Los Angeles MS4 Order would prevent any degradation. For this proposition, the Los Angeles Water Board cites to State Water Board guidance from 1990 (APU 90-004).⁸⁴ The guidance may be construed to exempt the Los Angeles Water Board from conducting an extensive pollutant by pollutant analysis for each water body in the region, but it does not exempt the Board from clearly stating its basis for finding that its action is consistent with the antidegradation policies.

The Los Angeles Water Board has provided a more extensive analysis of why the Los Angeles MS4 Order complies with the antidegradation policies in its October 15, 2013 Response. The Los Angeles Water Board argues that most of the water bodies impacted by the Los Angeles MS4 Order are already impaired for multiple constituents and that, even if some of these water bodies may have been higher quality in 1968, a scenario largely contradicted by the available data,⁸⁵ the appropriate baseline for the quality of such waters is the level of control achieved under the prior permit. The Los Angeles Water Board further argues that the Los Angeles MS4 Order has provisions that are equally or more stringent than those of the

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objective. Resolution 68-16 requires a comparison of the existing quality to “the quality established in policies as of the date on which such policies become effective.” (Resolution 68-16, Resolve 1.)

⁸³ Los Angeles MS4 Order, Finding II.M; Fact Sheet, Att. F, pp. F19-F20.

⁸⁴ APU 90-004, p. 2.

⁸⁵ We reviewed the Administrative Record, including the 1998 Clean Water Act section 303(d) List (May 12, 1999) (Administrative Record, section 10.VI.E., RB-AR35684-35733), the 2010 Clean Water Act section 303(d) List (Oct. 11, 2011) (Administrative Record, section 10.VI.E., RB-AR35734-35785), Santa Monica Bay Restoration Project, An Assessment of Inputs of Fecal Indication Organisms and Human Enteric Viruses from Two Santa Monica Bay Storm Drains (1990) (Administrative Record, section 10.VI.E, RB-AR43363-43413), Toxic Substances Monitoring Program, 10 Year Summary Report 1978-1987 (Administrative Record, Order No. 01-182, R0044602-0045053) and comments submitted by interested persons to the Los Angeles Water Board (Administrative Record RB-AR1006-1038, RB-AR1100-1128, RB-AR1768-2119, RB-AR2653-2847, RB-AR5642-17888). We found no specific evidence presented to the Los Angeles Water Board of high quality waters in the region with regard to pollutants typically associated with storm water discharges; however, we also recognize that in the absence of specific evidence of high quality waters, a blanket statement that there are no high quality water body-pollutant combinations may be overbroad.

2001 Los Angeles MS4 Order and therefore will not allow water quality to degrade below the level of control achieved under the prior permit.

We agree with the Los Angeles Water Board that the Los Angeles MS4 Order maintains and improves the level of control achieved under the 2001 Los Angeles MS4 Order. We expect that the Los Angeles MS4 Order's TMDL requirements and receiving water limitations, which may be implemented through the WMP/EWMP provisions, will be the means for achieving water quality standards for the majority of degraded water bodies in the region. To assert, as the Environmental Petitioners do, that compliance with the receiving water limitations provisions of the 2001 Los Angeles Order is more stringent than establishing specific implementation requirements with clear deadlines for TMDL and receiving water limitations compliance is misguided. We are concerned with the totality of the provisions in the two permits and find that, viewed from that broader perspective, the Los Angeles MS4 Order is at least as stringent in addressing degradation as its predecessor.⁸⁶ The Los Angeles MS4 Order improves on past practices that have been inadequate to protect water quality, and includes a monitoring and assessment program that will identify any changes in water quality.⁸⁷ In general, under the Los Angeles MS4 Order, we expect to see a trajectory away from any past degradation, even if there may be some continued short-term degradation.

We are not persuaded, however, that the level of control achieved under the 2001 Los Angeles MS4 Order necessarily represents the baseline for purposes of an antidegradation analysis. The 2001 Los Angeles MS4 Order had only minimal findings regarding antidegradation and it is not apparent that any degradation that may have continued under the conditions of the 2001 Los Angeles MS4 Order was anticipated by the Los Angeles Water Board and supported with appropriate analysis regarding economic and social benefits⁸⁸ and best practicable treatment or control. We therefore find that the appropriate baseline remains 1968 or the highest quality of receiving waters attained since 1968. We acknowledge

⁸⁶ In making this finding we also recognize that the Permittees may be deemed in compliance with receiving water limitations prior to approval of the WMP/EWMP. (Los Angeles MS4 Order Parts VI.C.2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.) As discussed further under section II.B.6., we find that the Los Angeles Water Board reasonably exercised its discretion in allowing for compliance during the program development phase and further that the program development phase does not detract from the overall effectiveness of the permit provisions.

⁸⁷ See *Asociacion de Gente Unida*, *supra*, 210 Cal.App.4th at p. 1278.

⁸⁸ We note that the administrative record provides evidence that some discharge of storm water is to the maximum benefit of the people of the state because such discharge is necessary for flood control and public safety and helps accommodate development. (See, e.g., Administrative Record, section 10.VI.C, RB-AR30101; RB-AR32557-32558.)

that the evidence in the record indicates that it is unlikely that many water bodies were high quality even as far back as 1968, but we cannot make a blanket statement to that effect.⁸⁹

Despite this conclusion, we will not remand the antidegradation issue to the Los Angeles Water Board for further consideration, but will make the findings ourselves based on the record before us. Our findings are necessarily made at a generalized level. Even if the directive of APU 90-004 to carry out a complete antidegradation analysis for each water body-pollutant combination is applicable here, there is simply insufficient data available (to us or the Los Angeles Water Board) to make such findings. The APU 90-004 contemplates the appropriate antidegradation analysis for a discrete discharge or facility. It has limited value when considering antidegradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, region, especially given that reliable data on the baseline water quality from 1968 is not available.⁹⁰

The Environmental Petitioners propose that antidegradation be addressed in subsequent actions of the Los Angeles Water Board by requiring that the reasonable assurance analysis (discussed in greater detail in section II.B.4.c. of this Order) supporting a WMP/EWMP also demonstrate that the proposed control measures will maintain high quality of waters with regard to pollutants for which they are not impaired. We reject this approach for two reasons. First, the Los Angeles Water Board was required under the federal and state antidegradation policies to evaluate whether permit conditions would lead to degradation of high quality waters at the time of permit issuance. Second, requiring Permittees to incorporate an evaluation of all water body-pollutant combinations, including those where there are no impairments or exceedances, would require them to expand the reasonable assurance analysis beyond its useful function and manageable scope.

We shall amend Finding II.M and Part D.3 at pages F-19 to F-20 of Attachment F, the Fact Sheet, as follows:

⁸⁹ See fn. 85.

⁹⁰ We note that USEPA did not conduct a detailed antidegradation analysis in issuing NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia, presumably for similar reasons. The court in *Asociacion de Gente Unida* relied on APU 90-004 in part in rejecting an antidegradation analysis conducted by the Central Valley Regional Water Quality Control Board for discharges of pollutants to groundwater from dairy facilities region-wide, but the court's objection was to the regional water board's reliance on an illusory prohibition of discharge to groundwater in finding that no antidegradation analysis was required, not to the sufficiency of any generalized antidegradation analysis the Board might have conducted in lieu of its reliance on the prohibition. (210 Cal.App.4th at pp. 1271-1273.)

Finding II. M.

M. Antidegradation Policy

40 CFR section 131.12 requires that state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16 **as set out in the Fact Sheet.**

Attachment F, Fact Sheet Part III.D.3.

3. Antidegradation Policy. 40 CFR section 131.12⁴ requires that the state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in [State Water Board Resolution No. 68-16](#) ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Resolution No. 68-16 and 40 CFR section 131.12 require the Regional Water Board to maintain high quality waters of the State **unless degradation is justified based on specific findings. First, the Board must ensure that "existing instream uses and the level of water quality necessary to protect the existing uses" are maintained and protected. Second, if the baseline quality of a water body for a given constituent exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected through the requirements of the Order unless the Board makes findings that (1) any lowering of the water quality is necessary to accommodate important economic or social development in the area in which the waters are located; (2) water quality adequate to protect existing uses fully is assured; and (3) the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control are achieved. The Board must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy. In particular, the Board must find that not only present, but also anticipated future uses of water are protected, and must ensure best practicable treatment or control of the discharges. The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.** until it is demonstrated that any change in quality will

~~be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires that discharges of waste be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.~~

The discharges permitted in this Order are consistent with the antidegradation provisions of 40 CFR section 131.12 and Resolution 68-16 **as set out in the Findings below:-**

1. Many of the water bodies within the area covered by this Order are of high quality. The Order requires the Permittees to meet best practicable treatment or control to meet water quality standards. As required by 40 CFR section 122.44(a), the Permittees must comply with the "maximum extent practicable" technology-based standard set forth in CWA section 402(p). Many of the waters within the area covered by this Order are impaired and for multiple pollutants discharged through MS4s and are not high quality waters with regard to these pollutants. In most cases, there is insufficient data to determine whether these water bodies were impaired as early as 1968, but the limited available data shows impairment dating back for more than two decades. Many such water bodies are listed on the State's CWA Section 303(d) List and either the Regional Water Board or USEPA has established TMDLs to address the impairments. This Order ensures that existing instream (beneficial) water uses and the level of water quality necessary to protect the existing uses is maintained and protected. This Order requires the Permittees to comply with permit provisions to implement the WLAs set forth in the TMDLs in order to restore the beneficial uses of the impaired water bodies consistent with the assumptions and requirements of the TMDLs. This Order further requires compliance with receiving water limitations to meet water quality standards in the receiving water either by demonstrating compliance pursuant to Part V.A and the Permittee's monitoring and reporting program pursuant to Part VI.B or by implementing Watershed Management Programs/EWMPs with a compliance schedule. This Order includes requirements to develop and implement storm water management programs, achieve water quality-based effluent limitations, and effectively prohibit non-storm water discharges through the MS4.

2. To the extent that some of the water bodies within the jurisdiction are high quality waters with regard to some constituents, this Order finds as follows:

a. Allowing limited degradation of high quality water bodies through MS4 discharges is necessary to accommodate important economic or social development in the area and is consistent with the maximum benefit to the people of the state. The discharge of storm water in certain circumstances is to the maximum benefit to the people of the state because it can assist with maintaining instream flows that support beneficial uses, may spur the development of multiple-benefit projects, and may be necessary for flood control, and public safety as well as to accommodate development in the

area. The alternative – capturing all storm water from all storm events – would be an enormous opportunity cost that would preclude MS4 permittees from spending substantial funds on other important social needs. The Order ensures that any limited degradation does not affect existing and anticipated future uses of the water and does not result in water quality less than established standards. The Order requires compliance with receiving water limitations that act as a floor to any limited degradation.

b. The Order requires the highest statutory and regulatory requirements and requires that the Permittees meet best practicable treatment or control. The Order prohibits all non-storm water discharges, with a few enumerated exceptions, through the MS4 to the receiving waters. As required by 40 CFR section 122.44(a), the Permittees must comply with the “maximum extent practicable” technology-based standard set forth in CWA section 402(p), and implement extensive minimum control measures in a storm water management program. Recognizing that best practicable treatment or control may evolve over time, the Order includes new and more specific requirements as compared to Order No. 01-182. The Order incorporates options to implement Watershed Management Programs or EWMPs that must specify concrete and detailed structural and non-structural storm water controls that must be implemented in accordance with an approved time schedule. The Order contains provisions to encourage, wherever feasible, retention of the storm water from the 85th percentile 24-hour storm event.

~~The issuance of this Order does not authorize an increase in the amount of discharge of waste. The Order includes new requirements to implement WLAs assigned to Los Angeles County MS4 discharges that have been established in 33 TMDLs, most of which were not included in the previous Order.~~

3. Compliance Schedules and the Appropriateness of Enforcement Orders

The Environmental Petitioners concede that immediate compliance with receiving water limitations is not achievable in many instances and that some additional time to reach compliance is warranted. They have proposed an alternative to the WMP/EWMP that would incorporate many of the provisions of those programs but require implementation through the mechanism of a time schedule order or other enforcement order rather than as permit conditions. The Los Angeles MS4 Order already provides that Permittees who are out of compliance with final WQBELs and other TMDL-specific limitations may request a time schedule order.⁹¹ Under the alternative proposed by the Environmental Petitioners, all Permittees that are currently out of compliance with receiving water limitations not addressed by a TMDL as well as with interim TMDL requirements with passed compliance deadlines, would be issued a time schedule order or other enforcement order not to exceed the five year term of

⁹¹ Los Angeles MS4 Order, Part VI.E.4., pp.146-147.

the permit. The Permittees would then implement a WMP/EWMP type plan to achieve compliance with the appropriate limitations within the confines of the enforcement order.

In the prior two sections, we found that the WMP/EWMP provisions are not contrary to the anti-backsliding or antidegradation requirements of federal and state law. We therefore disagree with the Environmental Petitioners that the relevant provisions must be stricken from the Order and incorporated instead into an enforcement order for those reasons. We also find that, given that strict compliance with water quality standards is discretionary in MS4 permits, the Los Angeles Water Board was not restricted to limiting the schedule for compliance with receiving water limitations to the term of the Los Angeles MS4 Order.

Further, from a policy perspective, we find that the MS4 Permittees that are developing and implementing a WMP/EWMP should be allowed additional time to come into compliance with receiving water limitations and interim and final TMDLs through provisions built directly into their permit, rather than through enforcement orders. Building a time schedule into the permit itself, as the Los Angeles MS4 Order does, is appropriate because it allows a more efficient regulatory structure compared to having to issue multiple enforcement orders. More importantly, it is appropriate to regulate Permittees in a manner that allows them to strive for compliance with the permit terms, provided no provision of law otherwise precludes including the schedule in the NPDES permit. For example, for traditional point source discharges subject to strict compliance with water quality standards pursuant to section 301(b)(1)(C), the terms of a compliance schedule are dictated by our compliance schedule policy (State Water Board Resolution 2008-0025) and any additional time for compliance could only be under the auspices of an enforcement order outside the permit.⁹²

The WMP/EWMP provisions constitute an effort to set ambitious, yet achievable, targets for Permittees; receiving water limitations, on the other hand, while the ultimate goal of MS4 permitting, may not in all cases be achievable within the five-year permit cycle. Generally, permits are best structured so that enforcement actions are employed when a discharger shows some shortcoming in achieving a realistic, even if ambitious, permit condition and not under circumstances where even the most diligent and good faith effort will fail to achieve the required condition. We add that it is our intention to encourage a watershed-based approach to addressing storm water issues going forward and that it would be contrary to that intention to

⁹² We also note that the State Water Board's Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2005) (State Implementation Policy) and the CTR itself (40 C.F.R. § 131.38(e)) restrict the scope of compliance schedules for effluent limitations addressing the discharge of toxic pollutants; however the policy does not apply to storm water discharges. (State Implementation Policy, p.3, fn.1.)

structure the watershed-based requirements as an enforcement order. We will not require Permittees that propose and timely implement a WMP/EWMP to request time schedule orders or other enforcement orders as a precondition of being in compliance with the receiving water limitations or interim TMDL requirements of the Los Angeles MS4 Order.

While declining to structure the WMP/EWMP provisions generally as an enforcement order, we acknowledge that time schedule orders are appropriate under some circumstances. We have already noted that the Los Angeles MS4 Order allows a Permittee to request a time schedule order where a final compliance deadline for a state-adopted TMDL has passed and the Permittee believes that additional time to comply with the requirement is necessary.⁹³ We expect that a Permittee will request a time schedule order also if the Permittee fails to meet a final compliance deadline for a TMDL after the adoption date of the Los Angeles MS4 Order. We will also provide that a Permittee may request a time schedule order if the Permittee fails to meet a final compliance deadline for a receiving water limitation set in the Permittee's WMP/EWMP.

We shall add a new Part VI.C.6.b and revise Part VI.E.4.b as follows:

Part VI.C.6

b. Where a Permittee believes that additional time to comply with a final receiving water limitation compliance deadline set within a WMP/EWMP is necessary, and the Permittee fails to timely request or is not granted an extension by the Executive Officer, a Permittee may, no less than 90 days prior to the final compliance deadline, request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

Part VI.E.4

b. Where a Permittee believes that additional time to comply with the final water quality-based effluent limitations and/or receiving water limitations is necessary, a Permittee may within 45 days of Order adoption, **or no less than 90 days prior to the final compliance deadline if after adoption of the Order,** request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

4. Rigor and Accountability in the WMPs/EWMPs

We now turn to a consideration, from a technical as well as policy lens, as to whether the WMPs/EWMPs are structured in a manner that will maximize the likelihood of

⁹³ *Ibid.*

reaching the ultimate goal of the compliance alternative – achieving receiving water limitations.⁹⁴ We can support an alternative approach to compliance with receiving water limitations only to the extent that that approach requires clear and concrete milestones and deadlines toward achievement of receiving water limitations and a rigorous and transparent process to ensure that those milestones and deadlines are in fact met. Conversely, we cannot accept a process that leads to a continuous loop of iterative WMP/EWMP implementation without ultimate achievement of receiving water limitations.

We find below that the WMP/EWMP provisions generally ensure the appropriate rigor, transparency, and accountability, and that, with the few revisions we direct, are designed to lead to achievement of receiving water limitations.⁹⁵

a. Milestones and Compliance Deadlines

We first consider whether the WMP/EWMP provisions require clear, concrete, and finite milestones and deadlines.

For water body-pollutant combinations addressed by TMDLs, the Los Angeles MS4 Order requires the Permittees to incorporate the compliance schedules found in Attachments L through R of the Order, which reflect previously adopted TMDL-based requirements, into the WMP/EWMP, and, as necessary, to develop interim milestones and dates for their achievement.⁹⁶ A Permittee that does not thereafter comply with the approved compliance schedule must instead demonstrate compliance with the WQBELs and other TMDL-specific limitations of the Order.⁹⁷ For water body-pollutant combinations not addressed by a TMDL, but where the relevant pollutant is one for which the water body is identified as impaired on the Clean Water Act section 303(d) List and the pollutant is in the same class as a TMDL pollutant, the Order requires that the WMP/EWMP incorporate a schedule consistent with the TMDL schedule for the same class pollutant.⁹⁸ A Permittee that does not thereafter comply with

⁹⁴ From a legal standpoint, our analysis serves to verify that the Los Angeles MS4 Order's alternative compliance approach through WMPs/EWMPs is supported by the findings and by evidence in the record. (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506.)

⁹⁵ We do not agree with Permittee Petitioners that the WMP/EWMP provisions are precluded by the program requirements of 40 Code of Federal Regulations section 122.26. Nor do we agree that the requirements are vague or lack definition. The WMP/EWMP provisions of the Order are guidelines for development of a subsequent program with more specificity to be approved by the Los Angeles Water Board or its Executive Officer.

⁹⁶ Los Angeles MS4 Order, Part VI.C.5.c., pp.64-65.

⁹⁷ *Id.*, Part VI.E.2.d.i(4)(c), p.144.

⁹⁸ *Id.*, Part VI.C.2.a.i., pp. 49-50.

the approved compliance schedule must instead demonstrate immediate compliance with the receiving water limitations in Part V.A.⁹⁹ We will not disturb these provisions.

With regard to exceedances of receiving water limitations not addressed by a TMDL, and where the pollutant is not in the same class as a pollutant addressed by a TMDL, the Order requires that the WMP/EWMP include milestones based on measurable criteria or indicators and a schedule for achieving the milestones. The WMP/EWMP must also incorporate a final date for achievement of receiving water limitations, but that date is circumscribed simply as “as soon as possible.”¹⁰⁰ Parts VI.C.2.a.ii.(4) and VI.C.2.a.iii.(2)(c) help clarify the meaning of “as soon as possible:”

Permittees shall identify enforceable requirements and milestones and dates for their achievement to control MS4 discharges such that they do not cause or contribute to exceedances of receiving water limitations within a timeframe(s) that is as short as possible, taking into account the technological, operation, and economic factors that affect the design, development, and implementation of the control measures that are necessary. The time between dates shall not exceed one year. Milestones shall relate to a specific water quality endpoint (e.g., x% of the MS4 drainage area is meeting the receiving water limitations) and dates shall relate either to taking a specific action or meeting a milestone.¹⁰¹

We will make a revision to the compliance schedule provisions to make it clear that the term “as soon as possible” is to be interpreted consistent with the more specific direction cited above. However, because the WMP/EWMP, and therefore the proposed compliance schedule, is subject to public review and comment and approval by the Los Angeles Water Board or its

⁹⁹ *Id.*, Part VI.C.2.c., p.52.

¹⁰⁰ *Id.*, Part VI.C.5.c.iii.(3), p. 65. If the pollutant is not in the same class as those addressed in a TMDL, but the water body is still identified as impaired for that pollutant, the WMP/EWMP must either have a final compliance deadline within the 5 year permit term or Permittees are expected to initiate development of a stakeholder-proposed TMDL and incorporate a compliance schedule consistent with the TMDL. (*Id.*, Part VI.C.2.a. ii., pp. 50-51) (If the exceedances are in a drainage area implementing the storm water retention approach, there is no requirement to initiate the TMDL development process.) The requirement to address receiving water limitations is ongoing. As exceedances are found through monitoring for water body-pollutant combinations not identified on the 303(d) List, Permittees must either meet receiving water limitations or include the water body-pollutant combination in the WMP/EWMP and set enforceable requirements and milestones and dates for their achievement within a time frame that is as short as possible. (*Id.*, Part VI.C.2.a.iii, pp. 51-52.) Permittees are deemed in compliance with receiving water limitations only for water body-pollutant combinations addressed in the WMP/EWMPs. Thus, as pointed out by several interested parties, for lower priority water body-pollutant combinations not incorporated into a WMP/EWMP for which exceedances are detected, Permittees may be in violation of the receiving water limitations. A Permittee always has the ability to reprioritize a water body-pollutant combination from low priority to high priority and amend its WMP/EWMP to incorporate measures to address that water body-pollutant combination.

¹⁰¹ *Id.*, Parts VI.C.2.a.ii.4, p. 50, VI.C.2.a.iii.(2)(c), p. 51 (identical language).

Executive Officer,¹⁰² we do not find it necessary to constrain the determination of milestones and dates for the achievement of receiving water limitations any further.

We shall amend Part VI.C.5.c.iii.(3)(b) as follows:

- (b) A final date for achieving the receiving water limitations as soon as possible, **consistent with Parts VI.C.2.a.ii.(4) & VI.C.2.a.iii.(2)(c).**

b. Constraints on Extension of Deadlines

The fact that the Los Angeles MS4 Order requires the establishment of concrete and rigorous deadlines within the WMP/EWMP for the achievement of receiving water limitations is critical to ensuring progress on such achievement; however, the Order also contemplates that the deadlines, with the exception of those compliance deadlines established in a TMDL, may be extended.¹⁰³ The WMP/EWMP is subject to an adaptive management process. Based on the results of that process the Permittees may propose modifications, including modifications to compliance deadlines and interim milestones, in the Annual Report.¹⁰⁴

The potential for multiple extensions is nevertheless ameliorated by the fact that extensions of compliance deadlines and interim milestones require Los Angeles Water Board Executive Officer approval,¹⁰⁵ and are accordingly, subject to a 30-day public comment period.¹⁰⁶ The public comment period will allow all other interested persons to weigh in on the appropriateness of any requested extensions. If thereafter dissatisfied with the determination made by the Executive Officer, interested persons may additionally seek review of the Executive Officer's decision by the Los Angeles Water Board.¹⁰⁷ Of course, in cases where no extension

¹⁰² *Id.*, Part VI.C.4.c., p.56, Table 9, p. 54, Part VI.A.5.b., p. 42, Att. F, Fact Sheet, p. F-42. Under Part VI.A.5.b, “[a]ll documents submitted to the Regional Water Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.”

¹⁰³ *Id.*, Parts VI.C.7, p.66, VI.C.8, pp.66-67.

¹⁰⁴ *Id.*, Part, VI.C.8, p.67. Under another provision of the Order, Permittees may at any time request an extension of deadlines for achievement of interim milestones established to address exceedances of receiving water limitations not otherwise addressed by a TMDL. (*Id.*, Part VI.C.6.a., p.65.) (We note that the cited provision refers to “milestones established pursuant to Part VI.C.4.c.ii.(3),” but the intent appears to have been to reference Part VI.C.5.c.iii.(3).) But as we read the Los Angeles MS4 Order, extensions of not just interim deadlines for achievement of milestones but also final compliance deadlines to achieve receiving water limitations are already allowed under the adaptive management provisions of Part VI.C.8.a.ii.: “Based on the results of the adaptive management process, Permittees shall report any modifications, including where appropriate *new compliance deadlines* and interim milestones, with the exception of those compliance deadlines established in a TMDL, necessary to improve the effectiveness of the Watershed Management Program or EWMP, in the Annual Report” (Emphasis added.)

¹⁰⁵ *Id.*, Parts VI.C.8, p.67, VI.C.6.a., p.65. We recognize that as currently written the adaptive management provisions in effect deem any modifications to the WMPs/EWMPs approved if the Executive Officer “expresses no objections” within 60 days. (*Id.*, Part VI.C.8.a.iii., p. 67.) With our revisions, any deadline extensions must be affirmatively approved by the Executive Officer.

¹⁰⁶ *Id.*, Part VI.A.5.b, p. 42.

¹⁰⁷ *Id.*, Part VI.A.6, p.42.

is available, as with final deadlines established in TMDLs,¹⁰⁸ or where no extension is requested or granted, failure to meet a deadline means that the Permittee will have to comply from that time forward with the receiving water limitations or WQBELs and other TMDL-specific limitations or request a time schedule order. Therefore, Permittees cannot rely on the certainty of a deadline extension, and Permittees have a strong incentive to implement control measures that will in fact get them to compliance by the established deadline. Given that the Permittees and the Los Angeles Water Board are working with limited data¹⁰⁸ regarding storm water impacts and control measure performance, especially where TMDLs have not been developed, we are hesitant to remove all flexibility for deadline extensions, and find that the Order strikes an appropriate balance.

Permittee Petitioners seek even greater flexibility under the WMP/EWMP provisions for adjusting approved control measures and time lines. They advocate for amendments that would allow a Permittee to propose alternative controls or time lines upon a demonstration that required controls for timely achievement of a limitation are either technically infeasible or otherwise constitute a substantial hardship to the Permittee. We have found above that, in the case of final deadlines set in the WMP/EWMP for achievement of receiving water limitations not otherwise addressed in a TMDL, the Los Angeles MS4 Order already provides for an opportunity to propose new deadlines through the adaptive management process. We will make a clarifying revision below to confirm that Permittees may ask for extensions in meeting receiving water limitations not addressed by a TMDL. Technical infeasibility or substantial hardship may be grounds for such a request. The Los Angeles Water Board Executive Officer, in turn, may, after allowing for public review and comment, choose to (1) extend the deadline, (2) decline the extension but approve any time schedule order requested by the Permittee, or (3) decline the extension and not approve a time schedule order, with the result that the Permittee will be out of compliance with the provision of the WMP/EWMP and therefore the receiving water limitations of Part V.A. As stated previously, interested persons may thereafter ask the Los Angeles Water Board to review the Executive Officer's determination.¹⁰⁹

With regard to final deadlines for WQBELs and other TMDL-specific limitations, we will not amend the WMP/EWMP provisions to add flexibility for extensions. We find that the only option appropriately available to a Permittee unable to meet final deadlines that are set out in a TMDL and incorporated into the Los Angeles MS4 Order and the WMP/EWMPs, is to

¹⁰⁸ *Id.*, Part VI.C.8.a.ii., p.67.

¹⁰⁹ *Id.*, Part VI.A.6, p.42.

request a time schedule order, consistent with Part VI.E.2.e. of the Order, as that Part was amended in section II.B.3. above.¹¹⁰

We shall amend Part VI.C.6.a as follows:

- a. Permittees may request an extension of deadlines for achievement of interim milestones **and final compliance deadlines** established pursuant to Part VI.C.45.c.iii.(3) ~~only~~, **with the exception of those final compliance deadlines established in a TMDL**. Permittees shall provide requests in writing at least 90 days prior to the deadline and shall include in the request the justification for the extension. Extensions ~~shall be subject to approval by~~ **must be affirmatively approved by** the Regional Water Board Executive Officer, **notwithstanding Part VI.C.8.a.iii.**

c. Rigor and Accountability in the Process

We see three additional components of the WMPs/EWMPs as essential to ensuring that the proposed WMPs/EWMPs are in fact designed to achieve receiving water limitations within the appropriate time frame.

First, as documents to be approved by either the Los Angeles Water Board or its Executive Officer, the WMPs/EWMPs are subject to a public review and comment period.¹¹¹ Such review includes consideration of proposed control measures, deadlines for achievement of final limitations, and the reasonable assurance analysis that supports the WMP/EWMP. We expect this public process to vet the proposed WMPs/EWMPs and facilitate revisions to strengthen the programs as needed, thereby providing some assurance that approved WMPs/EWMPs will achieve the water quality targets set out.

Second, the requirement for a reasonable assurance analysis in particular is designed to ensure that Permittees are choosing appropriate controls and milestones for the WMP/EWMP.¹¹² Competent use of the reasonable assurance analysis should facilitate achievement of final compliance within the specified deadlines.¹¹³

¹¹⁰ Final TMDL deadlines are established and incorporated into the Basin Plans during the TMDL development process. That process invites stakeholder participation and the proposed schedule is subject to public review and comment and approval by the relevant regional water board, the State Water Board, and USEPA. The deadlines are established with consideration of the time needed for compliance for all dischargers contributing to an impairment, including industrial and construction storm water dischargers and traditional NPDES dischargers. Although we recognize that it may not always be feasible for municipal storm water dischargers to meet final TMDL deadlines, short of amending the Basin Plan to modify the deadlines (see *California Association of Sanitation Agencies v. State Water Resources Control Board* (2012) 208 Cal.App.4th 1438), we find it appropriate for the dischargers to request time schedule orders rather than be granted an extension within the provisions of the Los Angeles MS4 Order.

¹¹¹ See Los Angeles MS4 Order, Parts VI.C.4.d., p. 57, VI.C.6, p. 65, Table 9, p.54; see also *id.*, Part VI.A.5., p. 42.

¹¹² *Id.*, Part VI.C.5.b.iv.(5), pp. 63-64.

¹¹³ We note that the Los Angeles Water Board has released guidance on the development of a reasonable assurance analysis. The guidance was released after adoption of the Los Angeles MS4 Order and accordingly is not (*Continued*)

Third, the adaptive management provisions of the Order ensure that the Permittees will evaluate monitoring data and other new information every two years and consider progress up to that point on achieving WQBELs and other TMDL-specific limitations. Permittees are required as part of the adaptive management process to propose modifications to improve the effectiveness of the WMP/EWMP and implement those modifications.¹¹⁴

While we are supportive of all of these measures, we find that they should be strengthened. As a preliminary matter, we will require the Permittees to submit specific information, concurrently with the two-year adaptive management process, that will assist the Los Angeles Water Board in determining how effective the WMP/EWMP path is in spurring the completion of on-the-ground structural control measures that lead to measurable water quality improvement. As we discuss further in Section II.B.8 of this Order, we will direct the Los Angeles Water Board to report to the State Water Board periodically on the effectiveness of the WMP/EWMP approach and expect the additional information submitted by the Permittees to inform that report.

More significantly, we will add a provision that requires Permittees to comprehensively update the reasonable assurance analysis and the WMP/EWMP, following an opportunity to implement the adaptive management process. Given the limitations inherent in models, as well as the potential incentive to choose the lowest effort and cost level predicted by the model to achieve receiving water limitations,¹¹⁵ we are concerned that reliance on one initial reasonable assurance analysis is insufficient to ensure that in the long term WMPs/EWMPs will

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part of the Administrative Record. We nevertheless take this opportunity to state that we expect any revisions and updates to the guidance to be subject to a public process as part of reissuance of the Los Angeles MS4 Order.

¹¹⁴ Los Angeles MS4 Order, Part VI.C.8., pp. 66-67. We add that the adaptive management process will also allow Permittees to revise their WMPs/EWMPs to take advantage of funding opportunities as they arise in the future, including funding opportunities through Assembly Bill 2403 (approved by Governor, June 28, 2014 (2013-2014 Reg. Sess.)) and Proposition 1 (approved by ballot Nov. 4, 2014). We are cognizant of criticism that the adaptive management process is just another version of the ineffective iterative process of the receiving water limitations. These arguments are misplaced. Unlike the iterative process of the receiving water limitations, the adaptive management process is only one component of a series of actions required under the WMP/EWMP and acts as a periodic check to ensure that all the other requirements are achieving the stated goals of the WMP/EWMP within clearly stated deadlines. As our discussion above makes clear, we would not endorse an alternative compliance path with the sole requirement to adaptively manage implemented control measures. Further, the adaptive management process in the Los Angeles MS4 Order differs from the iterative process in that Permittees must carry out the adaptive management process every two years, limiting any discretionary determination as to when the program must be evaluated. (Los Angeles MS4 Order, Part VI.C.8.a.)

¹¹⁵ The numerical analysis methods and models approved for use by Permittees for estimating hydrologic conditions and contaminant fate and transport in the watersheds should, in principle, be able to propagate any and all known uncertainty to the outputs and results. It is in the public interest that the Los Angeles Water Board communicate this uncertainty to all stakeholders, as the results in most cases will affect the beneficial uses of California waters. Moreover, it is highly desirable that, to the extent possible, the Los Angeles Water Board define a minimum level of uncertainty (or level of confidence) acceptable for a reasonable assurance analysis to be approved.

achieve relevant water quality goals. . Currently, as stated above, the Permittees are required to implement the adaptive management process every two years from the date of program approval. Under the provision we add, the Permittees will be required to comprehensively update the reasonable assurance analysis (including potentially considering whether the model itself and its assumptions require updating) and the WMP/EWMP after several years of adaptive management, based on previous years' monitoring data and other performance measures. The Permittee will submit a full revised package to the Los Angeles Water Board Executive Officer for approval, following public review.

Given that the WMPs/EWMPs in many cases address water quality targets that are to be achieved a decade or more in the future, a periodic, complete re-consideration and recalibration of the assumptions and predictions that support the proposed control measures and implementation schedule in light of new data, above and beyond the two-year adaptive management requirements of the Los Angeles MS4 Order, is essential, notwithstanding the additional time and effort that Permittees must expend on the update. We also recognize that such review is a staff intensive process for the Los Angeles Water Board, but addressing storm water impacts is a priority for that Board. Although we expect that the update will be necessary in most cases, the new requirements provide that the Executive Officer of the Los Angeles Water Board may waive the requirement for an update if the Permittee demonstrates through water quality monitoring that the WMP/EWMP is meeting appropriate targets. Our direction to require a comprehensive update of the reasonable assurance analyses and the WMPs/EWMPs after several cycles of adaptive management should in no way be construed as limiting the Los Angeles Water Board Executive Officer's discretion to request such updates earlier in the implementation process or the obligation of the Permittees to initiate such updates earlier in the implementation process based on the ongoing adaptive management process.

The second added provision will not be relevant for the permit term of the order before us; however, we anticipate that the next iteration of an MS4 Order for the Los Angeles area will closely track the Los Angeles MS4 Order to allow for continued implementation of the WMP/EWMPs.

We shall amend Part VI.C.8 by adding new subsections a.iv. and b. as follows:

a.

iv. Permittees shall report the following information to the Regional Water Board concurrently with the reporting for the adaptive management process:

(1) On-the-ground structural control measures completed;

(2) Non-structural control measures completed;

- (3) Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;**
- (4) Comparison of the effectiveness of the control measures to the results projected by the RAA;**
- (5) Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the Watershed Management Program or EWMP;**
- (6) Control measures proposed to be completed in the next two years pursuant to the Watershed Management Program or EWMP and the schedule for completion of those control measures;**
- (7) Status of funding and implementation for control measures proposed to be completed in the next two years.**

b. Watershed Management Program Resubmittal Process

- i. In addition to adapting the Watershed Management Program or EWMP every two years as described in Part VI.C.8.a., Permittees must submit an updated Watershed Management Program or EWMP with an updated Reasonable Assurance Analysis by June 30, 2021, or sooner as directed by the Regional Water Board Executive Officer or as deemed necessary by Permittees through the Adaptive Management Process, for review and approval by the Regional Water Board Executive Officer. The updated Reasonable Assurance Analysis must incorporate both water quality data and control measure performance data, and any other information informing the two-year adaptive management process, gathered through December 31, 2020. As appropriate, the Permittees must consider any new numeric analyses or other methods developed for the reasonable assurance analysis. The updated Watershed Management Program or EWMP must comply with all provisions in Part VI.C. The Regional Water Board Executive Officer will allow a 60-day public review and comment period with an option to request a hearing. The Regional Water Board Executive Officer must approve or disapprove the updated Watershed Management Program or EWMP by June 30, 2022. The Executive Officer may waive the requirement of this provision, following a 60-day public review and comment period, if a Permittee demonstrates through water quality monitoring data that the approved Watershed Management Program or EWMP is meeting appropriate water quality targets in accordance with established deadlines.**

5. Determination of Compliance with Final Requirements

a. Compliance with Final TMDL Requirements¹¹⁶

Part VI.E.2.e.i.4. of the Los Angeles MS4 Order provides that Permittees will be deemed in compliance with the final WQBELs and other TMDL-specific limitations if “[i]n drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water.”¹¹⁷ Part VI.E.2.e.i.4 is one of four options available to the Permittee in Part VI.E.2.e. to be deemed in compliance with WQBELs and other TMDL-specific limitations. The other three options allow a Permittee to establish compliance with a final WQBEL or other TMDL-specific limitation by showing that (1) there are no violations of the final WQBEL; (2) there are no exceedances of the receiving water limitation for the specific pollutant in the receiving water at or downstream of the Permittee’s outfall, or (3) there is no direct or indirect discharge from the Permittee’s MS4 to the receiving water during any relevant time period.¹¹⁸ These three options ensure that either the receiving water limitations or WQBELs and other TMDL-specific limitations are in fact being complied with. In contrast, the storm water retention approach assumes compliance with *final* WQBELs and other TMDL-specific limitations, and accordingly, compliance with the receiving water limitations in Part V for the relevant water body-pollutant combinations,¹¹⁹ even if the final WQBELs and other TMDL-specific limitations are not actually being achieved. The Environmental Petitioners argue that the Los Angeles Water Board has failed to establish through findings and record evidence that the storm water retention approach will in fact achieve compliance with the WQBELs and other TMDL-specific limitations and that the Los Angeles

¹¹⁶ The Los Angeles MS4 Order additionally deems compliance with *interim* WQBELs and other TMDL-specific limitations if the “Permittee has submitted and is fully implementing an approved” WMP/EWMP. (Los Angeles MS4 Order, Part VI.E.2.d.i.(4), p. 143; see also *id.*, Part VI.C.3.a., p. 53.) Because Permittees are required to incorporate into the WMP/EWMP compliance schedules “compliance deadlines occurring within the permit term for all applicable interim . . . water quality-based effluent limitations and/or receiving water limitations in Part VI.E and Attachments L through R,” we expect that in most cases full implementation of the WMP/EWMP necessarily results in compliance with interim WQBELs and other TMDL-specific limitations. However, to the extent this is not the result reached, we find that requiring implementation of the WMP/EWMP with control measures designed to achieve interim WQBELs and other TMDL-specific limitations, in lieu of showing actual compliance with any *interim* numeric requirements, is consistent with the assumptions and requirements of the wasteload allocations of the relevant TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).)

¹¹⁷ Los Angeles MS4 Order, Part VI.E.2.e.i.(4), p. 145.

¹¹⁸ *Id.*, Part VI.E.2.e.i.(1)-(3), pp. 144-45.

¹¹⁹ We note again that Part VI.E.2.c.i. states that Part VI.E establishes the manner of achieving compliance with the receiving water limitations in Part V.A where the receiving water limitations are associated with water body-pollutant combinations addressed in a TMDL.

MS4 Order's reliance on the storm water retention approach for final compliance determination is therefore contrary to the law.

We are supportive of the EWMP's use of the storm water retention approach as a technical requirement. Retention of storm water is likely to be an effective path to water quality improvement. Furthermore, in addition to preventing pollutants from reaching the receiving water except as a result of high precipitation events (which also generally result in significant dilution in the receiving water), the storm water retention approach has additional benefits including recharge of groundwater, increased water supply, reduced hydromodification effects, and creation of more green space to support recreation and habitat.¹²⁰

We have some concerns, however, with the lack of verification in the Los Angeles MS4 Order that final WQBELs and other TMDL-specific limitations or receiving water limitations will in fact be met as a result of implementation of the storm water retention approach. We acknowledge that, in most cases, the final TMDLs have deadlines outside of the permit term for the Los Angeles MS4 Order and that, therefore, with regard to those, our concerns are more theoretical at this point than immediate. Nevertheless, we agree with the Environmental Petitioners that the evidence in the Administrative Record is not sufficient to establish that the storm water retention approach will in all cases result in achievement of final WQBELs and other TMDL-specific limitations and, more importantly, are concerned that the Order itself does not incorporate clear requirements that would provide for such verification in the process of implementation.

With regard to evidence in the Administrative Record, it is clear that the storm water retention approach is a promising approach for achieving compliance with receiving water limitations, with multiple additional environmental benefits. But the research regarding the storm water retention approach is still in early stages and we cannot say with certainty at this point that implementation will lead to compliance with receiving water limitations in all cases.¹²¹

With that conclusion in mind, we look to the Los Angeles MS4 Order itself to determine if there are sufficient additional provisions to assure that, in the long run, the storm water retention approach will achieve the ultimate goal of compliance with receiving water limitations. We first note that the Order does not require a reasonable assurance analysis when

¹²⁰ See e.g. Administrative Record, section 10.VI.C, RB-AR29263-29311, RB-AR32318-32350.

¹²¹ We reviewed the citations to the Administrative Record provided in the Los Angeles Water Board October 15, 2013 Response and in the October 15, 2013 Responses of many of the Petitioners. We find that the cited studies show the storm water retention to be a promising approach to meeting water quality standards, but do not establish, at a sufficiently high level of confidence, that the storm water retention approach will definitively achieve compliance with the receiving water limitations.

a Permittee opts for the storm water retention approach. Permittees are required to conduct a reasonable assurance analysis for each water body-pollutant combination addressed by a WMP, with the objective of demonstrating the ability of the controls to ensure that MS4 discharges achieve applicable WQBELs and do not cause or contribute to exceedances of receiving water limitations.¹²² The relevant provisions reference EWMPs, but elsewhere the Order states that the reasonable assurance analysis is only required for areas covered by the EWMP where retention of the 85th percentile, 24-hour storm event is not feasible.¹²³ The Fact Sheet also implies that the requirement for a reasonable assurance analysis is confined to situations where the storm water retention approach is not feasible.¹²⁴ In sum, then, Permittees that choose to develop and implement an EWMP are required to conduct a reasonable assurance analysis for each waterbody-pollutant combination addressed by the EWMP, except in the drainage areas that are tributary to the storm water retention projects.

The fact that the storm water retention approach does not require a reasonable assurance analysis prior to implementation to demonstrate the ability of the approach to achieve compliance with the limitations is mitigated in part by required monitoring and adaptive management to verify compliance following implementation. Although the provision could be clearer, we read the language “[i]n drainage areas where Permittees are implementing an EWMP” in Part VI.E.2.e.i.(4) to require Permittees to be in compliance with all aspects of the EWMP, including the monitoring and adaptive management provisions of Parts VI.C.7 and 8, to be deemed in compliance with final limitations through the storm water retention approach. As we read the Order, a Permittee’s showing that it has retained all non-storm water and all storm water up to and including the volume equivalent to the 85th percentile, 24-hour event, establishes compliance, but only if the Permittee continues to conduct monitoring and adapt the EWMP in response to the monitoring. The Los Angeles Water Board appears to read the Order the way we do, as it states in its October 15, 2013 Response that “the Permit requires monitoring and adaptive management, which will continue to inform the Los Angeles Water Board regarding the efficacy of this storm water retention approach in conjunction with implementation of the other storm water management program elements and any needed

¹²² Los Angeles MS4 Order, Part VI.C.5.b.iv.(5), pp. 63-64.

¹²³ *Id.*, Part VI.C.1.g., p. 48.

¹²⁴ *Id.*, Att. F, Fact Sheet, p. F-39.

modifications to the approach.”¹²⁵ The Los Angeles Water Board further states in comments submitted on a draft of this order, as follows:

The Los Angeles MS4 Order does not exclude EWMPs or areas within an EWMP where the stormwater retention standard is achieved from the integrated watershed monitoring, assessment and adaptive management processes. Neither does the Los Angeles MS4 Order specify or contemplate an end to the monitoring, assessment and adaptive management processes in the case of a Watershed Management Program (WMP) or EWMP. These required elements, including receiving water and outfall monitoring, evaluation of these monitoring data, and modification of the EWMP to improve its effectiveness, will be continually conducted throughout the Watershed Management Area addressed by the EWMP. . . . The Los Angeles Water Board understood that these regional multi-benefit projects would take time to implement and that Permittees needed to be afforded this time in the Los Angeles MS4 Order. The Los Angeles Water Board will continually evaluate progress during the implementation period. If, as full implementation nears, some Receiving Water Limitations are still not achieved, the Los Angeles Water Board and State Water Board have a variety of tools that can be used at a regional or statewide level including reconsideration of TMDLs, Basin Planning actions, policy development and permitting, among others.¹²⁶

We will make a revision to Part VI.E.2.e.i. to make it clear that the Permittee must be in compliance with all other requirements of the EWMP in addition to implementation of the storm water retention approach in order to be deemed in compliance with the final WQBELs and other TMDL-specific limitations.

With no definitive evidence in the record establishing that the storm water retention approach will achieve final requirements, no reasonable assurance analysis required at the outset, and reliance only on subsequent monitoring and adaptive management to improve results if final limitations are not in fact achieved, the storm water retention approach does not provide a level of assurance of success that would lead us to conclude that its implementation, with nothing else, is sufficient to constitute compliance with final WQBELs and other TMDL-specific limitations. We understand that there are nevertheless very good reasons to encourage its use. Certainly for all non-storm water and for all storm water generated in storms up to the 85th percentile storm, the storm water retention approach achieves compliance because there is no discharge. And there are significant benefits beyond water quality, including most importantly benefits to water supply. We also believe that public projects requiring investment of this magnitude are unlikely to be carried out without a commitment from the water boards that Permittees will be considered in compliance even if the resulting improvement in water quality

¹²⁵ Los Angeles Water Board, October 15, 2013 Response, p. 62.

¹²⁶ Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3.

does not rise all the way to complete achievement of the final WQBELs and other TMDL-specific limitations.

We are not willing to go as far as saying that compliance with the storm water retention approach alone constitutes compliance with final WQBELs and other TMDL-specific limitations for all time, regardless of the actual results.¹²⁷ Nonetheless, we anticipate that implementation of such projects will bring the drainage area most and, in many cases, all of the way to achievement of water quality standards. Where there is still a gap in required water quality improvement, we expect the Executive Officer of the Los Angeles Water Board to require appropriate actions, consistent with the provisions of the Los Angeles MS4 Order and the Los Angeles Water Board's stated interpretation of those provisions,¹²⁸ to close that gap with additional control measures in order for the Permittee to be considered in compliance with the WQBEL or other TMDL-specific limitation. There are various mechanisms to provide assurances that additional control measures will be implemented to achieve the WQBEL or other TMDL-specific limitation, and in some instances, it may be appropriate for the Los Angeles Water Board to issue a time schedule order governing the implementation of further control measures. Further, as acknowledged by the Los Angeles Water Board in its comments, in some circumstances, reconsideration of the underlying TMDLs and the final deadlines within those TMDLs may instead be warranted.¹²⁹ We additionally recognize that municipal storm water management is an area of continued development and, with continued research and data evaluation, water quality standards may evolve and become more nuanced or sophisticated over time.

While we decline to interpret the storm water retention approach to, in and of itself, constitute compliance with final WQBELs and other TMDL-specific limitations, we emphasize here that any additional control measures to reach compliance that may be required by the Los Angeles Water Board must not require changes to installed storm water retention projects. Any revisions should be prospective in nature and should not disturb projects that Permittees have already installed in good faith to comply with the provisions of their EWMP.

¹²⁷ Further, Permittees still have substantial incentive to develop and implement an EWMP. If a permittee pursues an EWMP, it will be deemed in compliance with the receiving water limitations during the EWMP development phase, and it may also recognize significant non-water quality benefits.

¹²⁸ Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3. As explained in footnote 110, at this time we see limited options available to the Los Angeles Water Board in addressing compliance with final deadlines for WQBELs and other TMDL-specific limitations.

¹²⁹ We also acknowledge the need for and commit to supporting state-wide solutions for source reduction as appropriate, similar to the brake pad legislation adopted to address copper discharges. (Senate Bill 346 (approved by the Governor September 27, 2010).)

Ultimately, we must set out to verify through appropriate monitoring that final WQBELs and other TMDL-specific limitations can be achieved through the storm water retention approach, or be willing to revise that approach. However, new or additional measures required at that point should be additive to the storm water retention approach measures already installed.

In sum, despite the uncertainty inherent in allowing the storm water retention approach, we concur in its use in the Los Angeles MS4 Order, with the clarification that ultimate compliance is subject to continued planning, monitoring and adaptive management. We shall amend Part VI.E.2.e.i. as follows:

- i. A Permittee shall be deemed in compliance with an applicable final water quality-based effluent limitation and final receiving water limitation for the pollutant(s) associated with a specific TMDL if any of the following is demonstrated:

...

- (4) In drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water, **and the Permittee is implementing all requirements of the EWMP, including, but not limited to, Parts VI.C.7 and VI.C.8 of this Order.** This provision (4) shall not apply to final trash WQBELs.

b. Compliance with Final Receiving Water Limitations

The Los Angeles MS4 Order states that for receiving water limitations associated with water-body pollutant combinations addressed in a TMDL, compliance with the TMDL requirements of the Order in Part VI.E and Attachments L through R constitutes compliance with the receiving water limitations in Part V.A.¹³⁰ In other words, if there is an exceedance for a pollutant in a water body that has a TMDL addressing that pollutant, as long as the Permittee is complying with the requirements for the TMDL, the Permittee is deemed in compliance with the receiving water limitation. No petitioner has contested this provision and we find that it constitutes an appropriate approach to compliance with receiving water limitations for water body-pollutant combinations that are addressed by a TMDL.

For exceedances of receiving water limitations for a water body-pollutant combination not addressed by a TMDL, as previously discussed, the Permittee must either incorporate control measures to address the exceedances into the Permittee's WMP/EWMP or comply directly with the receiving water limitations provisions of Part V.A of the Order. For

¹³⁰ Los Angeles MS4 Order, Part VI.E.2.c.ii., p. 143.

Permittees that choose the WMP/EWMP approach, the WMP/EWMP must incorporate “a final date for achieving the receiving water limitation.”¹³¹ To the extent the Permittee does not achieve the limitation by that final date and does not request and receive an extension, the Permittee has “fail[ed] to meet [a] requirement or date for its achievement in an approved Watershed Management Program or EWMP”¹³² and is immediately subject to the receiving water limitations provisions of the Order, with the same result that it is out of compliance. In other words, implementation of non-structural and structural control measures in accordance with the timelines established in the WMP/EWMP constitutes compliance with the receiving water limitations up until the final deadline for achievement of the relevant receiving water limitation; however, at the deadline for final compliance, there must be verification of achievement based on the receiving water limitation itself. While we find that the Order provisions lead to this result as written, for the sake of greater clarity, we will specifically state that final compliance with receiving water limitations must be determined through verification that the receiving water limitation is actually being achieved.

We shall amend Part VI.C.2.c. as follows:

- c. If a Permittee fails to meet any requirement or date for its achievement in an approved Watershed Management Program or EWMP, the Permittee shall be subject to the provisions of Part V.A. for the waterbody-pollutant combination(s) that were to be addressed by the requirement. **For water body-pollutant combinations that are not addressed by a TMDL, final compliance with receiving water limitations is determined by verification through monitoring that the receiving water limitation provisions in Part V.A.1 and 2 have been achieved.**

c. Compliance with the Non-Storm Water Discharge Prohibition

The Environmental Petitioners suggest that the Los Angeles MS4 Order is unclear as to whether compliance with the WMP/EWMP may also constitute compliance with the non-storm water discharge prohibition of the Order. We disagree that the Los Angeles MS4 Order is unclear on this issue. The Permittees’ obligation to comply with the receiving water limitations and WQBELs and other TMDL-specific limitations in Parts V.A and VI.E is independent of the Permittees’ obligation to comply with the effective prohibition of non-storm water discharges in Part III.A. The several provisions stating that Permittees will be deemed to be in compliance with the receiving water limitations of the Los Angeles MS4 Order for implementing the WMP/EWMP specifically reference Parts V.A and VI.E of the Order and not

¹³¹ *Id.*, Part VI.C.5.c.iii.(3)(b), p. 65.

¹³² *Id.*, Part VI.C.2.c., p. 52.

III.A.¹³³ This notwithstanding, Parts VI.C.1.d and VI.C.5.b.iv.(2) require that a Permittee's WMP/EWMP include program elements and control measures to effectively prohibit non-storm water discharges consistent with Part III.A and Part VI.D.4.d or VI.D.10. Therefore, a Permittee's implementation of program elements and control measures consistent with Part III.A and Part VI.D.4.d or VI.D.10, through its approved WMP/EWMP, may provide a mechanism for compliance with Part III.A. Although we accordingly see no need to direct revisions to the Order, we provide this clarification here to respond to the Environmental Petitioners' concern and address any confusion that may exist.

6. "Safe Harbor" During the Planning Phase for the WMP/EWMP

Under the Los Angeles MS4 Order, a Permittee that has declared its intention to develop a WMP/EWMP is deemed in compliance with the receiving water limitations and with interim WQBELs with due dates prior to approval of the WMP/EWMP for the water body-pollutant combinations the WMP/EWMP addresses, provided it meets certain conditions, even though the Permittee is developing, not implementing the WMP/EWMP. Specifically, the Permittee is deemed in compliance if the Permittee (1) provides timely notice of its intent to develop a WMP/EWMP; (2) meets all interim and final deadlines for development of a WMP/EWMP; (3) targets implementation of watershed control measures in the existing program

¹³³ Los Angeles MS4 Order, Parts VI.C.2.b., p. 52, VI.C.3.a., p. 53, VI.E.2.c.ii., p. 143, VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144. To the extent that a non-storm water discharge authorized by Part III.A may be causing or contributing to an exceedance of receiving water limitations in V.A, compliance with the WMP/EWMP provisions would constitute compliance with the receiving water limitations and any relevant interim WQBELs and other TMDL-specific limitations, as long as the WMP/EWMP addresses the water body-pollutant combination for that water body. However, the discharger would have to additionally comply with requirements in Part III.A. and Part VI.D.4.d or VI.D.10 through its approved WMP/EWMP for conditionally exempt non-storm water discharges that are found to cause or contribute to an exceedance in the receiving water. (See *id.*, Part III.A.4.c.-e., pp. 31-32.) We disagree that every discharge from a Permittee's MS4 to the receiving water of non-storm water that is not specifically authorized under Part III.A will necessarily be subject to enforcement under the Los Angeles MS4 Order. Section 402(p)(3)(B)(ii) of the Clean Water Act imposes a requirement to "effectively prohibit" non-storm water discharges. Part III.A of the Los Angeles MS4 Order effectuates that requirement with a requirement for the Permittee to prohibit non-storm water discharges: "Each Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters, except where such discharges are . . . [listing exceptions]." (Los Angeles MS4 Order, Part III.A.1, p. 27.) The Los Angeles MS4 Order incorporates a specific and detailed programmatic requirement – the Illicit Connections and Illicit Discharges Elimination Program – for the Permittees to achieve their obligation to effectively prohibit non-storm water discharges. (Los Angeles MS4 Order, Parts VI.D.4.d., pp. 81-86, VI.D.10, pp. 137-141.) We recognize that even the most comprehensive efforts to address unauthorized non-storm water discharges may not eliminate all such discharges. Where a Permittee is fully implementing its Illicit Connections and Illicit Discharges Elimination Program, either pursuant to Parts VI.D.4.d. or VI.D.10, or by incorporation of customized actions into a WMP/EWMP as approved by the Los Angeles Water Board (see Los Angeles MS4 Order Part VI.D.1.a., p. 67), we would expect any enforcement action under Part III.A to be supported by a fact-specific analysis of the nature and source of the unauthorized non-storm water discharge and the efforts of the Permittee to prohibit the discharge.

to address known contributions of pollutants; and (4) receives approval of the WMP/EWMP within the specified time periods.¹³⁴

The Environmental Petitioners object to the availability of a “safe harbor” during the planning phase. We disagree with the Environmental Petitioners that providing a “safe harbor” in the planning phase is disallowed by applicable law -- see our discussion of anti-backsliding requirements in section II.B.1. and antidegradation requirements in section II.B.2. However, we understand that deeming a discharger in compliance with receiving water limitations during the planning phase, not just the implementation phase, could weaken the incentive for Permittees to efficiently and timely seek approval of a WMP/EWMP and to move on to implementation. It is the implementation of the WMP/EWMP that will in fact lead to progress toward compliance with receiving water limitations; the planning phase is essential, but should be only as long as necessary for a well-planned program with carefully analyzed controls to be developed. Given the significance of the water quality issues addressed by the WMP/EWMPs, it is paramount that implementation begin as soon as feasible. Accordingly, the “safe harbor” in the planning phase is appropriate only if it is clearly constrained in a manner that sustains incentives to move on to approval and implementation and is structured with clear, enforceable provisions.

Having reviewed the planning sections of the WMP/EWMP provisions carefully, we find that the Los Angeles MS4 Order does sufficiently constrain the planning phase, so that the “safe harbor” provided is not unreasonable. As already stated, compliance is deemed only if the Permittee is meeting the relevant deadlines for development and approval of the WMP/EWMP.¹³⁵ There are no provisions in the Order that allow for extensions to these deadlines. If a Permittee fails to obtain approval within the allowed number of months for the development of a WMP/EWMP, the Order states that the Permittee must then instead demonstrate actual compliance with receiving water limitations and with applicable interim WQBELs.¹³⁶ The Los Angeles MS4 Order is also clear that achievement of any TMDL-associated final deadlines occurring prior to the approval deadlines for the WMP/EWMP cannot be excused through commitment to planning for a WMP/EWMP.¹³⁷

¹³⁴ *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

¹³⁵ *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

¹³⁶ *Id.*, Part VI.C.4.e., p. 58.

¹³⁷ *Id.*, Parts VI.C.3.c., p. 53, VI.C.4.d.iii, p. 58. Under Part VI.C.4.d.iii., Permittees must ensure that MS4 discharges achieve compliance with interim, in addition to final, trash WQBELs during the planning phase.

Further, Permittees are subject to a number of conditions during the planning phase that will ensure that progress toward achievement of receiving water limitations is not put on hold pending approval of the plan. These include requirements to put in place Low Impact Development (LID) ordinances and green streets policies¹³⁸ and to continue to implement watershed control measures in the existing storm water management programs, including those to eliminate non-storm water discharges,¹³⁹ but in a manner that is targeted to address known pollutants.¹⁴⁰

Given the clear, enforceable requirements limiting the planning phase of the WMP/EWMP provisions, we find that the Los Angeles MS4 Order's inclusion of provisions deeming compliance with the receiving water limitations and with interim WQBELs during development of the programs is reasonable.

In fact, we are concerned that the Los Angeles Water Board has left no room for any deviation from the prescribed development schedule for WMP/EWMPs. A Permittee working in good faith to develop a WMP/EWMP over multiple months may encounter an issue that requires it to ask for a short extension on an interim or final deadline. Under such circumstances, the Los Angeles Water Board should be able to consider the request for the extension, rather than have its hands tied and have to reject a WMP/EWMP based on lack of timeliness. We will add a provision to the Order that provides the Los Angeles Water Board or its Executive Officer discretion in granting such extensions, but the Permittee will not be deemed in compliance with the applicable receiving water limitations and WQBELs during the period of the extension.

We shall add a new Part VI.C.4.g. as follows:

g. Permittees may request an extension of the deadlines for notification of intent to develop a Watershed Management Program or EWMP, submission of a draft plan, and submission of a final plan. The extension is subject to approval by the Regional Water Board or the Executive Officer. Permittees that are granted an extension for any deadlines for development of the WMP/EWMP shall be subject to the baseline requirements in Part VI.D and shall demonstrate compliance with receiving water limitations pursuant to Part V.A. and with applicable interim water quality-based effluent limitations in Part VI.E pursuant to subparts VI.E.2.d.i.(1)-(3) until the Permittee has an approved WMP/EWMP in place.

¹³⁸ *Id.*, Part VI.C.4.c., pp. 56-57.

¹³⁹ *Id.*, Part VI.C.4.d.i.-ii., pp. 57-58.

¹⁴⁰ *Id.*, Parts VI.C.2.d.iii., pp. 52-53, VI.C.3.b.iii., p. 53, VI.E.2.d.i.(4)(d)(3), p. 144.

7. Conclusion

In conclusion, we uphold the WMP/EWMP provisions as a reasonable alternative compliance option for meeting receiving water limitations and uphold the WMP/EWMP provisions in all other aspects, except as specifically stated above. We find that the WMP/EWMP approach is a clearly defined, implementable, and enforceable alternative to the receiving water limitations provisions that we mandated in Order WQ 99-05, and that the alternative provides Permittees an ambitious, yet achievable, path forward for steady and efficient progress toward achievement of those limitations while remaining in compliance with the terms of the permit.

We direct all regional water boards to consider the WMP/EWMP approach to receiving water limitations compliance when issuing Phase I MS4 permits going forward.¹⁴¹ In doing so, we acknowledge that regional differences may dictate a variation on the WMP/EWMP approach, but believe that such variations must nevertheless be guided by a few principles.¹⁴² We expect the regional water boards to follow these principles unless a regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

1. The receiving water limitations provisions of Phase I MS4 permits should continue to require compliance with water quality standards in the receiving water and should not deem good faith engagement in the iterative process to constitute such compliance. The Phase I MS4 permits should therefore continue to use the receiving water limitations provisions as directed by State Water Board Order WQ 99-05.

¹⁴¹ We acknowledge that small MS4s permitted under the statewide General Permit for WDRs for Storm Water Discharges from Small MS4s (Order No. 2013-0001-DWQ) (General Phase II MS4 Permit) have similar practical issues as Phase I permittees in complying with receiving water limitations. Nevertheless, because the General Phase II MS4 Permit is issued by the State Water Board, not the regional water boards, we limit our guidance to regional water boards to the Phase I permits. The State Water Board is committed to working with small MS4s, the regional water boards, and interested persons in developing an alternative compliance option for the General Phase II MS4 Permit.

¹⁴² In considering appropriate guidance for regional water boards drafting alternative compliance paths in municipal storm water permits, we have reviewed the proposed "strategic compliance program" model language that was submitted by the California Stormwater Quality Association (CASQA) and supported in whole or in part by a number of interested persons. (CASQA August 15, 2013 Receiving Water Limitations Submission, Attachment A, Section E.) While we have not in these proceedings adopted the CASQA language, or, for that matter, any specific language, for alternative compliance path provisions, regional water boards remain free to consider and incorporate the CASQA approach into their municipal storm water permits to the extent they determine and document that the approach, including any modifications, satisfies the principles we set out in this section as well as all other direction we have provided in this order.

2. The Phase I MS4 permits should include a provision stating that, for water body-pollutant combinations with a TMDL, full compliance with the requirements of the TMDL constitutes compliance with the receiving water limitations for that water body-pollutant combination.
3. The Phase I MS4 permits should incorporate an ambitious, rigorous, and transparent alternative compliance path that allows permittees appropriate time to come into compliance with receiving water limitations without being in violation of the receiving water limitations during full implementation of the compliance alternative.
4. The alternative compliance path should encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements.
5. The alternative compliance path should encourage the use of green infrastructure and the adoption of low impact development principles.
6. The alternative compliance path should encourage multi-benefit regional projects that capture, infiltrate, and reuse storm water and support a local sustainable water supply.
7. The alternative compliance path should have rigor and accountability. Permittees should be required, through a transparent process, to show that they have analyzed the water quality issues in the watershed, prioritized those issues, and proposed appropriate solutions. Permittees should be further required, again through a transparent process, to monitor the results and return to their analysis to verify assumptions and update the solutions. Permittees should be required to conduct this type of adaptive management on their own initiative without waiting for direction from the regional water board.

8. Direction to the Los Angeles Water Board to Report to the State Water Board on Implementation

We recognize that our review has been limited to the provisions of the Los Angeles MS4 Order. The success of the WMP/EWMP approach depends in large part on the steps that follow adoption of these provisions, i.e., the effort invested by Permittees in developing WMPs/EWMPs that truly address the stringent provisions of the Order, the precision with which the Los Angeles Water Board reviews the draft programs and requires revisions, and, most importantly, the actual implementation and appropriate enforcement of the programs once approved. The work going forward must ensure that the WMPs/EWMPs in fact exhibit the rigor and accountability the provisions of the Los Angeles MS4 Order demand. We expect that the Los Angeles Water Board will make careful oversight and enforcement a priority and that they will be aided in this process by the public review and comment opportunities built into the terms of the Order.

The process of developing the WMPs/EWMPs is currently ongoing -- the Los Angeles Water Board has been reviewing draft and revised draft WMPs and workplans for EWMPs – and, although we have been asked by the Environmental Petitioners to take official notice of some of the submissions and conditional approvals in the process, it is premature for the State Water Board to speak to the sufficiency of the resulting WMPs/EWMPs until the Los Angeles Water Board, with full input from the stakeholders, has had the opportunity to consider, revise, and finally approve the programs. We note again that all documents submitted to the Los Angeles Water Board Executive Officer for approval are subject to a 30-day public comment period¹⁴³ and that any formal determination or approval by the Executive Officer may be reviewed by the Los Angeles Water Board upon request by an interested person.¹⁴⁴ And an interested person may petition the State Water Board to review an action or failure to act of the Los Angeles Water Board.¹⁴⁵

Once the WMPs/EWMPs are approved, ensuring that they are diligently and timely implemented must remain a top priority for the Los Angeles Water Board. We expect that the Los Angeles Water Board will continue to work cooperatively and closely with the Permittees, the Environmental Petitioners, and other interested persons in this process, but that the Board will also use its enforcement authority to ensure that appropriate progress is made toward water quality goals. We intend to remain involved in this process, as we must learn statewide from the successes and shortcomings of the approach we are endorsing with this order. We accordingly direct the Los Angeles Water Board to report to us on progress in implementation of the WMPs/EWMPs, and progress in improving water quality during this and the next permit term by February 28, 2018, by February 29, 2020, and by March 31, 2022. Specifically, we ask that the Los Angeles Water Board report on region-wide data for the following:

- On-the-ground structural control measures completed;
- Non-structural control measures completed;
- Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;

¹⁴³ Los Angeles MS4 Order, Part V.A.5.b, p. 42.

¹⁴⁴ *Id.*, Part V.A.6, p. 42.

¹⁴⁵ Wat. Code, § 13320. On April 28, 2015, the Executive Officer of the Los Angeles Water Board conditionally approved several submitted WMPs. On May 28, 2015, the Environmental Petitioners filed a petition challenging the conditional approvals and requesting review by the Los Angeles Water Board and by the State Water Board of the Executive Officer's determination.

- Comparison of the effectiveness of the control measures to the results projected by the reasonable assurance analyses;
- Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the WMPs/EWMPs;
- Control measures proposed to be completed in the next two years pursuant to the WMPs/EWMPs and the schedule for completion of those control measures;
- Status of funding and implementation for control measures proposed to be completed in the next two years;
- Trends in receiving water quality related to pollutants typically associated with storm water;
- Available permit compliance data, including requests for compliance extensions;
- Enforcement actions taken and results.

In addition to covering the above information, the third report shall summarize and reflect the comprehensive information gathered through the updates of the reasonable assurance analyses and WMPs/EWMPs conducted by the Permittees in the second permit term.

C. Appropriateness of TMDL Requirements

Section 303(d) of the Clean Water Act requires the water boards to identify impaired water bodies that do not meet water quality standards after applying required technology-based effluent limitations.¹⁴⁶ TMDLs are developed by either the regional water boards or by USEPA in response to section 303(d) listings of impaired water bodies. A TMDL is defined as the sum of the individual wasteload allocations for point sources of pollution, the load allocations for nonpoint sources of pollution, and the contribution from background sources of pollution,¹⁴⁷ and represents the maximum amount of a pollutant that a water body may receive and still achieve water quality standards. TMDLs developed by regional water boards include implementation provisions¹⁴⁸ and are typically incorporated into the regional water board's water quality control plan.¹⁴⁹ TMDLs developed by USEPA typically contain the total load and load allocations required by section 303(d), but do not set out comprehensive implementation provisions.¹⁵⁰ Most TMDLs are not self-executing, but instead rely upon subsequently-issued permits to impose requirements on discharges that implement the TMDLs' wasteload

¹⁴⁶ 33 U.S.C. § 1313(d).

¹⁴⁷ 40 C.F.R. § 130.2(i).

¹⁴⁸ Wat. Code, §§ 13050, subd. (j), 13242.

¹⁴⁹ See 40 C.F.R. §§ 130.6(c)(1).

¹⁵⁰ *Am. Farm Bureau Fed'n v. U.S. E.P.A.* (M.D. Pa. 2013) 984 F. Supp. 2d 289, 314.

allocations.¹⁵¹ The Los Angeles MS4 Order includes TMDL-specific requirements that implement 33 TMDLs (twenty-five adopted by the Los Angeles Water Board, seven established by USEPA, and one adopted by the Santa Ana Regional Water Quality Control Board that assigned requirements to two Permittees of the Los Angeles MS4 Order) in Part VI.E and in Attachments L-R.

Petitioners raise a number of challenges to the TMDL-based requirements of the Los Angeles MS4 Order. We take up several of those arguments in this section.¹⁵²

1. Inclusion of Numeric WQBELs

Permittee Petitioners argue that the numeric WQBELs incorporated into the Los Angeles MS4 Order as TMDL-based limitations are contrary to the Clean Water Act and to state law and policy. We disagree.

Under the federal regulations implementing the Clean Water Act, effluent limitations in NPDES permits developed to achieve water quality standards must be consistent with the assumptions and requirements of any available wasteload allocation for the discharge.¹⁵³ In addition, the Porter-Cologne Act requires that waste discharge requirements implement any relevant water quality control plans,¹⁵⁴ including TMDL requirements that have been incorporated into the water quality control plans. The Los Angeles MS4 Order incorporates numeric WQBELs and other limitations that the Los Angeles Water Board found are consistent with the TMDL requirements applicable to the Permittees.

Permittee Petitioners argue that there is no requirement under federal law for incorporation of TMDL requirements into an MS4 permit and that the inclusion of the requirements in Part VI.E and in Attachments L-R was therefore at the discretion of the Los Angeles Water Board. They point out, as we acknowledged in section II.A, that MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the MEP, but that requirements to strictly meet water quality standards are at the discretion of the permitting agency.¹⁵⁵ Because TMDL requirements are a path to achieving water quality standards, the Permittee Petitioners argue, the Los Angeles Water Board had the discretion not to include them in the Los Angeles MS4 Order.

¹⁵¹ *City of Arcadia v. EPA* (N.D. Cal. 2013) 265 F.Supp.2d 1142, 1144-1145.

¹⁵² We note that we do not take up any arguments that challenge the terms of the TMDLs. Those arguments should have been made during the public process when the TMDLs were adopted. They are untimely now.

¹⁵³ 40 C.F.R. § 122.44(d)(1)(vii)(B).

¹⁵⁴ Wat. Code, § 13263, subd. (a).

¹⁵⁵ 33 U.S.C. § 1342(p); *Defenders of Wildlife, supra*, 191 F.3d 1159.

Answering the question of whether the Los Angeles Water Board was required under federal law to strictly effectuate TMDL compliance through the Los Angeles MS4 Order is a largely irrelevant exercise because we have already reaffirmed in this order that we will continue to require water quality standards compliance in MS4 permits. Further, given the back-stop nature of TMDLs, and the fact that each set of dischargers must meet their share of the allocation to reach the total reductions set out, a regime in which municipal storm water dischargers were given a pass on TMDL obligations would render the promise of water quality standards achievement through TMDLs illusory. This is especially true in a large urbanized area where pollutants in storm water constitute a significant share of the impairment and where other dischargers would be disproportionately burdened if MS4s were not held to their allocations. Although not dispositive, we also note that USEPA has assumed in guidance (discussed in more detail below) issued on storm water and TMDL implementation that MS4 permits must incorporate effluent limitations consistent with the assumptions and requirements of relevant wasteload allocations.¹⁵⁶ To the extent the TMDL provisions of the Clean Water Act and the federal regulations could be read to preclude mandatory incorporation of wasteload allocations into an MS4 permit, effluent limitations consistent with those load allocations should nevertheless be required under Clean Water Act section 402, subsection (p)'s direction that the MS4 permit shall require "such other controls" as the permitting authority determines "appropriate for the control of such pollutants."¹⁵⁷ Finally, for TMDLs incorporated into water quality control plans, the implementation plan associated with the TMDL applies to all dischargers named, including MS4 permittees, and the MS4 permits must be consistent with the direction in the water quality control plan.¹⁵⁸

Having found that the Los Angeles Water Board acted in a manner consistent with federal and state law when it developed WQBELs to address applicable TMDLs, we next turn to whether *numeric* WQBELs were appropriate. We find that the Los Angeles Water Board

¹⁵⁶ USEPA, Memorandum, "Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," (Nov. 22, 2002) (2002 USEPA Memorandum); see also USEPA, Memorandum, "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,'" (Nov. 26, 2014) (2014 USEPA Memorandum). The 2014 USEPA Memorandum replaced a memorandum with the same title issued on November 12, 2010, which was subsequently opened to public comment. (USEPA Statement (March 17, 2011), available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).)

¹⁵⁷ 33 U.S.C. § 1342(p)(3)(B)(iii). See, e.g., State Water Board Orders WQ 91-03, WQ 91-04, WQ 98-01, WQ 99-05, WQ 2001-15.

¹⁵⁸ Wat. Code, § 13263, subd. (a); see also *State Water Res. Control Bd. Cases* (2006) 136 Cal. App. 4th 674, 730 (noting the obligation of the water boards to follow the program of implementation included in a water quality control plan).

acted within its legal authority when establishing numeric WQBELs, and further that its choice of numeric WQBELs was a reasonable exercise of its policy discretion.

In the context of MS4 discharges, effluent limitations in NPDES permits may be expressed in the form of either numeric limitations or best management practices (BMPs). The federal regulations specifically state that BMP-based effluent limitations may be used to control pollutants for storm water discharges.¹⁵⁹ USEPA has issued two memoranda, on November 22, 2002 (2002 USEPA Memorandum), and on November 26, 2014 (2014 USEPA Memorandum), providing guidance to the states on translating wasteload allocations for storm water into effluent limitations in NPDES Permits.¹⁶⁰ The 2002 USEPA Memorandum contemplated that “the NPDES permitting authority will review the information provided by the TMDL . . . and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit.”¹⁶¹ The 2002 USEPA Memorandum further stated that “EPA expects that most WQBELs for NPDES-regulated municipal . . . storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.”¹⁶² The 2014 USEPA Memorandum, after noting the increased information available to the permitting agencies after more than a decade of experience with setting wasteload allocations and effluent limitations, explained that:

Where the TMDL includes WLAs for stormwater sources that provide numeric pollutant loads, the WLA should, where feasible, be translated into effective, measurable WQBELs that will achieve this objective. This could take the form of a numeric limit, or of a measurable, objective BMP-based limit that is projected to achieve the WLA. . . . The permitting authority’s decision as to how to express the WQBEL(s), either as numeric effluent limitations or as BMPs, with clear, specific, and measurable elements, should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying

¹⁵⁹ 40 C.F.R. § 122.44(k)(2); see also 33 U.S.C. § 1342(p)(3)(B)(iii). 40 Code of Federal Regulations section 122.44(k)(3) further contemplates that BMP-based effluent limitations are appropriate where it is infeasible to develop a numeric effluent limitation.

¹⁶⁰ 2002 USEPA Memorandum; 2014 USEPA Memorandum. In addition to the two memoranda, USEPA published guidance titled “Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits” ((Sept. 1996) 61 Federal Register 57425), which recommended inclusion of BMPs in first-round permits, and expanded or better-tailored BMPs in subsequent permits. In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits. The report concluded that it was not feasible, at that time, to set enforceable numeric effluent limitations for municipal storm water discharges.

¹⁶¹ 2002 USEPA Memorandum, p. 5.

¹⁶² *Id.*, p. 2.

WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information.¹⁶³

Both options – to choose BMP-based WQBELs or to choose numeric WQBELs – were legally available to the Los Angeles Water Board. In adopting numeric WQBELs, the Los Angeles Water Board analyzed the specific facts and circumstances surrounding storm water discharges in the region and reasonably concluded that numeric WQBELs were warranted because storm water discharges constituted a significant contributor to the water quality standards exceedances in the area and the exceedances had not been to date resolved through BMP-based requirements. Moreover, the Los Angeles Water Board concluded that it could feasibly develop numeric WQBELs following the extensive work already conducted to develop the TMDLs, which involved analyzing pollutant sources and allocating loads using empirical relationships or quantitative models. We will not second-guess the determination of the Los Angeles Water Board, given its extensive and unique role in developing the TMDLs and the permit to implement the TMDLs, that numeric WQBELs were appropriate for the Los Angeles MS4 Order.¹⁶⁴

We emphasize, however, that we are not taking the position that numeric WQBELs are appropriate in all MS4 permits or even with respect to certain TMDLs within an MS4 permit. In a recent amendment to State Water Board Order 2011-0011-DWQ, NPDES Statewide Storm Water Permit for State of California Department of Transportation (Caltrans),¹⁶⁵ we found BMP-based TMDL requirements to be “consistent with the assumptions and requirements of the WLAs” of the TMDLs applicable to Caltrans. That determination was based on a number of factors including the fact that Caltrans, a single discharger, was named in over 80 TMDLs statewide, the fact that Caltrans had relatively little contribution to the exceedances in each of those TMDLs, and the consideration that there was significant efficiency to be gained by streamlining and standardizing control measure implementation throughout Caltrans’ statewide storm water program. Similarly, regional water boards may find BMP-based requirements to be appropriate based on TMDL-specific, region-specific, or permittee-specific

¹⁶³ 2014 USEPA Memorandum, p. 6.

¹⁶⁴ The Los Angeles Water Board incorporated a discussion in the Fact Sheet of how the TMDL wasteload allocations were translated into numeric WQBELs in order to implement the TMDLs in the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att.F, Fact Sheet, pp. F-89-F-100). See 40 C.F.R. § 124.8. We are not independently reviewing the calculations and analyses underlying the specific numeric limitations arrived at by the Los Angeles Water Board; rather, our review has been limited to a determination of whether the choice of numeric rather than BMP-based limitations was reasonable. To the extent any petitioners asked us to independently review the issue in their petitions seeking review of the Order, the issue is dismissed. See fn. 11.

¹⁶⁵ State Water Board Order WQ 2014-0077-DWQ.

considerations. In many ways, the Los Angeles MS4 Order was uniquely positioned to incorporate numeric WQBELs because of the extensive TMDL development in the region in the past decade and the documented role of MS4 discharges in contributing to the impairments addressed by those TMDLs. Thus, while we decline to remove the numeric WQBELs from the Los Angeles MS4 Order, we also decline to urge the regional water boards to use numeric WQBELs in all MS4 permits.¹⁶⁶

2. Requirement for Reasonable Potential Analysis

The federal regulations implementing NPDES permitting require the permitting authority to establish WQBELs for point source discharges when those discharges cause, have the “reasonable potential” to cause, or contribute to an excursion above water quality standards.¹⁶⁷ Permittee Petitioners argue that the Los Angeles Water Board did not conduct an appropriate reasonable potential analysis prior to imposing numeric WQBELs. The argument is misguided. The Los Angeles Water Board established that the MS4 discharges can cause or contribute to exceedances of water quality standards through the process of developing TMDLs and assigning wasteload allocations. At the permitting stage, the Los Angeles Water Board’s legal obligation was to develop WQBELs “consistent with the assumptions and requirements of any wasteload allocation” in the TMDLs,¹⁶⁸ and not to reconsider reasonable potential.¹⁶⁹

3. USEPA-Established TMDLs

USEPA has established seven TMDLs that include wasteload allocations for MS4 discharges covered by the Los Angeles MS4 Order. In contrast to state-adopted TMDLs, USEPA-established TMDLs do not contain an implementation plan or schedule for achievement of the wasteload allocations,¹⁷⁰ with the effect that Permittees must comply with wasteload allocations immediately. To avoid this result, the regional water board may either adopt a

¹⁶⁶ Relying on the 2014 USEPA Memorandum, Permittee Petitioners also argue that the Los Angeles Water Board was required to disaggregate storm water sources within applicable TMDLs. The 2014 USEPA Memorandum only encourages permit writers to assign specific shares of the wasteload allocation to specific permittees during the permitting process, reasoning that permit writers may have more detailed information than the TMDL writers to assign reductions for specific sources. (2014 USEPA Memorandum, p.8.) In an MS4 system as complex and interconnected as that covered under the Los Angeles MS4 Order, we do not expect the permitting authority to be able to disaggregate wasteload allocations by discharger. Further, as discussed in section II.F. on joint responsibility, the Los Angeles MS4 Order has provided a means for Permittees with commingled discharges to demonstrate that they are not responsible for any given exceedance of a limitation.

¹⁶⁷ 40 C.F.R. § 122.44(d)(1)(iii).

¹⁶⁸ 40 C.F.R. § 122.44(d)(1)(vii)(B).

¹⁶⁹ See USEPA, NPDES Permit Writers Manual (updated September 2010), Chapter 6, section 6.3.3.

¹⁷⁰ See, e.g., *Am. Farm Bureau Fed'n v. U.S. E.P.A.*, *supra*, 984 F. Supp. 2d at p. 314.

separate implementation plan as a water quality control plan amendment¹⁷¹ or issue the Permittee a compliance order with a compliance schedule.¹⁷² For the seven USEPA-established TMDLs applicable to the Permittees, the Los Angeles Water Board authorizes Permittees subject to a wasteload allocation in a USEPA-established TMDL to propose control measures that will be effective in meeting the wasteload allocation, and a schedule for their implementation that is as short as possible, as part of a WMP/EWMP.¹⁷³ Permittees that do not submit an adequate WMP/EWMP are required to demonstrate compliance with the wasteload allocations immediately.¹⁷⁴

Permittee Petitioners argue that the Los Angeles Water Board has acted inconsistently in requiring BMP-based compliance with the USEPA-established TMDLs but requiring numeric WQBELs for the state-established TMDLs. We have already stated above in section C.1 that the permitting authority has discretion to choose between BMP-based and numeric effluent limitations depending on fact-specific considerations. The Los Angeles Water Board was not restricted to choosing one single uniform approach to implementing all 33 TMDLs in the Los Angeles MS4 Order. In fact, straight-jacketing NPDES permit writers to choose one approach to the exclusion of another, even within the confines of a single MS4 permit, would run afoul of USEPA's expectations in the 2014 USEPA Memorandum for a fact-specific, documented justification for the permit requirements included to implement a wasteload allocation.

The Environmental Petitioners argue that the provisions are contrary to law because they excuse Permittees from complying with final numeric wasteload allocations as long as they are implementing the BMPs proposed in the WMP/EWMP. The approach taken by the Los Angeles MS4 Order to compliance here is similar to the provisions for compliance with receiving water limitations that are not otherwise addressed by a TMDL: The Permittee proposes control measures and a timeline that is as short as possible and is considered in compliance with the final numeric limitations while implementing the control measures consistent with the schedule. We find that, given the absence of an implementation plan with final compliance deadlines specified in the Los Angeles Water Board's water quality control

¹⁷¹ Wat. Code, § 13242.

¹⁷² *Id.*, See, e.g., § 13300.

¹⁷³ The Los Angeles MS4 Order's Fact Sheet states that the Los Angeles Water Board may choose to adopt implementation plans or issue enforcement orders in the future. (Los Angeles MS4 Order, Att. F, Fact Sheet, p. F-111.)

¹⁷⁴ Los Angeles MS4 Order, Part VI.E.3., pp. 145-146.

plan, this approach is consistent with the assumptions and requirements of the relevant wasteload allocations. We will not revise the provisions.

D. Non-Storm Water Discharge Provisions

Permittee Petitioners argue that the non-storm water discharge provisions of the Los Angeles MS4 Order are contrary to the Clean Water Act. Specifically, Permittee Petitioners assert that the Los Angeles MS4 Order improperly regulates non-storm water discharges from the MS4 to the receiving waters by imposing the prohibition of discharge “through the MS4 to the receiving waters” and by imposing WQBELs and other numeric limitations, rather than the MEP standard, on dry weather discharges.

The Los Angeles MS4 Order states that “[e]ach Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters” with certain exceptions including discharges separately regulated under an NPDES permit and discharges conditionally exempt from the prohibition consistent with the federal regulations.¹⁷⁵ Permittee Petitioners take issue with the imposition of the prohibition “through the MS4 to receiving waters” because the language does not track the specific requirement of the Clean Water Act that the MS4 permit “include a requirement to effectively prohibit non-stormwater discharges *into the storm sewer.*” (Emphasis added.)¹⁷⁶

We find the variation in language to be a distinction without a difference. Whether the Los Angeles MS4 Order prohibits non-storm water discharges *into* the MS4 or *through* the MS4 to receiving waters, the intent and effect of the prohibition is to prevent non-exempt non-storm water discharges from reaching the receiving waters.¹⁷⁷ The legal standard governing non-storm water – effective prohibition -- is not altered because the Los Angeles MS4 Order imposes the prohibition at the point of entry into the receiving water rather than the point of entry into the MS4 itself. Instructively, USEPA has used the terms “into,” “from,” and “through” interchangeably when describing the prohibition.¹⁷⁸

¹⁷⁵ *Id.*, Part III.A, pp 27-33.

¹⁷⁶ 33 U.S.C. § 1342(p)(3)(B)(ii).

¹⁷⁷ The Los Angeles Water Board notes that the language in the Los Angeles MS4 Order is not significantly changed from the version in the 2001 Los Angeles MS4 Order, which prohibited non-storm water discharges “into the MS4 and watercourses.” The Board additionally asserts that phrasing the prohibition as “through the MS4 to receiving waters” provides Permittees with greater flexibility to use measures that control non-storm water after it enters the MS4, including regional solutions such as low-flow diversions and catch-basin inserts.

¹⁷⁸ See, e.g., 55 Fed. Reg. 47990, 47995-47996 (“Section 402(p)(B)(3) of the CWA requires that permits for discharges *from municipal separate storm sewer systems* require the municipality to ‘effectively prohibit’ non-storm water discharges *from the municipal separate storm sewer*...Ultimately, such non-storm water discharges *through a municipal separate storm sewer* must either be removed from the system or become subject to an NPDES permit. . . . (Continued)

Permittee Petitioners' objection to the phrasing of the prohibition in the Los Angeles MS4 Order appears to be based largely on the assumption that prohibiting non-storm water discharges at the point of entry into the receiving water rather than at the point of entry into the MS4 allows the Los Angeles Water Board to impose requirements on those discharges that would otherwise not be available under the Clean Water Act and federal regulations. We disagree.

As a preliminary matter, regardless of the phrasing of the non-storm water discharge prohibition, MEP is not the standard that governs non-storm water discharges. Permittee Petitioners have asserted that, for non-storm water discharges that enter the MS4, MEP is the governing standard just as it is for storm water discharges. This assertion misinterprets the statute. The Clean Water Act imposes two separate standards for regulation of non-storm water and storm water in an MS4 permit: The MS4 permit "shall include a requirement to effectively prohibit non-stormwater discharges" into the MS4, and "shall require controls to reduce the discharge of pollutants to the maximum extent practicable. . . ." ¹⁷⁹ Although the statute imposes the MEP standard to control of "pollutants" rather than specifically to "pollutants in storm water," any reading of section 402(p)(3)(B)(iii) to apply generally to both non-storm water and storm water would render the effective prohibition of non-storm water in section 402(p)(3)(B)(ii) meaningless. The federal regulations confirm the distinction between the treatment of storm water and non-storm water by establishing requirements to prevent illicit discharges from entering the MS4. ¹⁸⁰ While the regulations have no definition for "non-storm water discharges," illicit discharges most closely represent the statutory term and are defined as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit . . . and discharges resulting from firefighting activities." ¹⁸¹ Further, contrary to assertions by Permittee Petitioners, the definition of storm water in the federal regulations is not inclusive of dry weather discharges. The federal regulations define storm water as "storm water runoff, snow melt runoff, and surface runoff and

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The CWA prohibits the point source discharge of non-storm water not subject to an NPDES permit *through municipal separate storm sewers to waters of the United States.*" (Emphasis added.)

¹⁷⁹ 33 U.S.C. § 1342(p)(3)(b)(iii).

¹⁸⁰ 40 C.F.R. § 122.26(d)(2)(iv)(B).

¹⁸¹ *Id.*, § 122.26(b)(2). The preamble to the regulations states: "Today's rule defines the term 'illicit discharge' to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit." (55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).)

drainage.”¹⁸² Surface runoff and drainage cannot be understood to refer to dry weather discharges where USEPA has specifically stated in the preamble to the relevant regulations that it would not expand the definition of storm water to include “a number of classes of discharges which are not in any way related to precipitation events.”¹⁸³ Accordingly, dry weather discharges are not a component of storm water discharges subject to the MEP standard.¹⁸⁴

Second, the Los Angeles Water Board’s legal authority to impose TMDL-based WQBELs and other limitations on dry weather discharges is derived not from the phrasing of the discharge prohibition in the statute but from the TMDLs themselves, as well as the Clean Water Act direction to require “such other provisions” as the permitting authority “determines appropriate for the control of such pollutants.” We have already found that the Los Angeles MS4 Order reasonably (and legally) incorporated numeric WQBELs and other limitations to implement the TMDLs. The Los Angeles Water Board’s authority to impose the limitations for dry weather conditions is accordingly independent of the provisions establishing the non-storm water effective prohibition.

Permittee Petitioners also assert that requiring compliance with the non-storm water discharge prohibition through and from the MS4 would frustrate enforcement of the illicit connection and illicit discharge elimination programs of the Los Angeles MS4 Order, which continue to require the Permittee to prohibit illicit discharges and connections to the MS4.¹⁸⁵ On this point, we agree with the Los Angeles Water Board that the illicit connection and illicit discharge elimination program is a means to implement the non-storm water prohibition and independently implementable and enforceable. We are more sympathetic to the argument by Permittee Petitioners that, in the context of a complex MS4 system with commingled discharges, the prohibition of discharges through the MS4 to the receiving waters poses greater compliance challenges than a prohibition of discharges into the MS4; however, the Los Angeles MS4 Order’s Monitoring and Reporting Program contains a procedure by which a Permittee will notify the Board and the upstream jurisdiction when non-exempted, non-storm water discharges pose an issue in commingled discharges.¹⁸⁶ Further, the Los Angeles Water Board states in its

¹⁸² 40 C.F.R. § 122.26(b)(13).

¹⁸³ 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).

¹⁸⁴ We disagree that the phrasing of the non-storm water discharge prohibition in the Los Angeles MS4 Order means that *any* dry weather discharges from the MS4 could be construed as a violation of the Clean Water Act for the same reasons articulated in footnote 133 of this order.

¹⁸⁵ Los Angeles MS4 Order, Parts VI.A.2.a.iii, p. 40, VI.D.4.d., p. 81-86, VI.D.10, p. 137-141.

¹⁸⁶ Los Angeles MS4 Order, Att. E, Monitoring and Reporting Program, Part IX.F.6, p. E-27.

October 15, 2013 Response that the upstream jurisdiction would then have the responsibility to further investigate and address the discharge.¹⁸⁷ The challenge of addressing compliance and enforcement in the context of interconnected MS4s and commingled discharges is a challenge pervasive in the MS4 regulatory structure and not unique to non-storm water discharges. We are not sufficiently persuaded by Permittee Petitioners' arguments regarding compliance to disturb the non-storm water prohibitions as currently established in the Los Angeles MS4 Order.

E. Monitoring Provisions

Relying on Water Code sections 13165, 13225, and 13267, Permittee Petitioners argue that the Los Angeles Water Board was required to conduct a cost-benefit analysis to support the monitoring and reporting requirements of the Los Angeles MS4 Order. Because the monitoring and reporting provisions of the Los Angeles MS4 Order are incorporated pursuant to federal law, the cited provisions are inapplicable here. The monitoring and reporting provisions of the Los Angeles MS4 Order were established under the Clean Water Act and USEPA's regulations.¹⁸⁸ Further, under state law, Water Code section 13383, rather than Water Code section 13267, controls monitoring and reporting requirements in the context of NPDES permitting, and that provision does not include a requirement to ensure that the burden, including costs of the report, bear a reasonable relationship to the need for the report.¹⁸⁹

¹⁸⁷ Los Angeles Water Board, October 15, 2013 Response, p. 33 & fn. 116.

¹⁸⁸ See 33 U.S.C. §§ 1318, 1342(a)(2); 40 C.F.R. §§ 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)D, 122.41(h), 122.41(j), 122.41(l), 122.42(c), 122.44(i), 122.48.

¹⁸⁹ Permittee Petitioners argue that the cost considerations of Water Code sections 13225 and 13267 are relevant to the Los Angeles MS4 Order notwithstanding the fact that it was issued under federal authority because the requirements of those section are not inconsistent with the requirements of section 13383. (See Water Code, §13372, subd. (a) ("To the extent other provisions of this division are consistent with the requirements for state programs . . . those provisions apply . . .").) This exact assertion was taken up by the trial court in litigation challenging the 2001 Los Angeles MS4 Order and decided in favor of the Los Angeles Water Board. The trial court stated: "As noted in *Silkwood v. Kerr-McGee Corp.* (1984) 464 U.S. 238, the Court held, in part: 'state law is still preempted. . . where the state law stands as an obstacle to the accomplishment of the full purposes and objectives of Congress.' (464 U.S. at p. 248.) Applying Water Code sections 13225 and 13267 would stand, in the words of *Silkwood* as: 'an obstacle to the accomplishment of the full purposes and objectives of [the federal law].' (Ibid)." (*In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase II Trial on Petitions for Writ of Mandate, at pp.19-20 (Administrative Record, section 10.II., RB-AR23197-23198.). Further, we note that Water Code section 13383, subdivision (c) specifically references subdivision (c) of section 13267 when establishing facility inspection requirements; in contrast, section 13383, subdivision (a) does not reference subdivision (b) of section 13267, which incorporates the requirement that "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." Water Code section 13383, subdivision (a), was therefore arguably intended to stand in place of the requirements in section 13267(b). Finally, even where authority to impose a monitoring and reporting requirement is clearly derived from Water Code section 13267, the provision requires consideration of the costs and benefits of monitoring and reporting, but not a full cost-benefit analysis. We therefore find that the Los Angeles Water Board did not fail to meet its legal obligations by not carrying out a full cost-benefit analysis specific to the monitoring and reporting requirements of the Los Angeles MS4 Order. However, in making this finding, in no way do we mean to disavow the significance of cost consideration in permitting actions, even where not specifically required by law. We note again that the Los Angeles Water Board carefully considered the costs of (Continued)

Moreover, the monitoring and reporting requirements of the Los Angeles MS4 Order do not exceed the requirements of the Clean Water Act and the federal regulations.¹⁹⁰ In particular, we find that the receiving water monitoring requirements of the Order are reasonable in light of the need to identify water quality exceedances and evaluate progress in compliance with water quality standards. The argument made by several Permittee Petitioners that the federal regulations allow only two types of monitoring – effluent and ambient – for compliance is without support in the relevant regulations. The relevant law is clear that the permitting authority is required to incorporate monitoring and reporting requirements sufficient to determine compliance with the permit conditions.¹⁹¹ In contrast, nothing in the Clean Water Act or the regulations states that requiring wet weather receiving water monitoring is beyond the authority of the permitting agency.¹⁹² Further, accepting such a constrained interpretation of the Clean Water Act’s monitoring requirements would undermine storm water permitting assessment. Excluding wet weather receiving water monitoring would preclude storm water dischargers from assessing the impacts of their discharges on waters of the United States during the events for which they are primarily being permitted—storm events. We find nothing in the text or preamble of the federal regulations to support a narrow interpretation of monitoring to exclude wet weather receiving monitoring.

To the extent Permittee Petitioners are arguing that the MEP standard, applied at the outfall, constrains the permitting authority’s discretion to require monitoring beyond the outfall, we also find no support in the law for that proposition. We have already stated that we will continue to require compliance with water quality standards in MS4 permits. Wet weather receiving water monitoring is fundamental to assessing the effects of storm water discharges on water quality and determining the trends in water quality as Permittees implement control

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compliance with the Los Angeles MS4 Order generally as summarized in the Fact Sheet. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-144-F-149.) Further, the Los Angeles Water Board considered monitoring costs-related comments on earlier drafts of the Los Angeles MS4 Order, and, in a number of cases, where presented with an argument that a cost related to a particular monitoring requirement was not commensurate with the benefits to be received from that requirement, made revisions to the requirement. (See, e.g., Administrative Record, section 8, RB-AR19653-19654, RB-AR19666, RB-AR19674, RB-AR19681.)

¹⁹⁰ The Los Angeles Water Board provided its rationale for the receiving water monitoring requirements in the Fact Sheet of the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att. F, Fact Sheet, F-113-F-137.)

¹⁹¹ See 33 U.S.C. § 1318(a)(2); 40 C.F.R. § 122.26(d)(2)(i)(F). While we do not interpret these requirements to mean that each and every permit condition must have a corresponding monitoring and reporting requirement, neither do we see any constraints on the water boards’ authority to establish monitoring and reporting requirements.

¹⁹² Permittee Petitioners reference language in the federal regulations concerning “effluent and ambient monitoring” (40 C.F.R. § 122.44(d)(1)(vi)(C)(3)) and appear to be using the phrase as support for their argument. That section is inapposite as it applies to situations where a State has not established a water quality objective for a pollutant present in the effluent and instead establishes effluent limitations on an indicator parameter for the pollutant of concern.

measures. Compliance may be determined at the outfall – for example, where a permittee determines that the discharge does not exceed an applicable WQBEL or receiving water limitation – but outfall monitoring alone cannot provide the broader data related to trends in storm water discharge impacts on the receiving water. Accordingly, receiving water monitoring is a legal and reasonable component of the monitoring and reporting program. Further, because Permittees are responsible for impacts to the receiving waters resulting from their MS4 discharges, Permittees may be required to participate in monitoring not only in receiving waters within their jurisdiction but also in monitoring all receiving waters that their discharges impact.

We will make no revisions to the Monitoring and Reporting provisions of the Order.

F. Joint Responsibility

In the extensive and interconnected system regulated by the Los Angeles MS4 Order, discharges originating from one Permittee’s MS4 frequently commingle with discharges from other Permittees’ MS4s within or outside of the Permittee’s jurisdiction. Permittee Petitioners argue that the Los Angeles MS4 Order improperly ascribes responsibility to all Permittees with commingled discharges where those commingled discharges exceed a WQBEL or cause or contribute to exceedances of receiving water limitations. Specifically, Permittee Petitioners take issue with the fact that the Los Angeles MS4 Order ascribes “joint responsibility”¹⁹³ to the co-Permittees without a showing that a particular Permittee has in fact discharged the pollutant causing or contributing to the exceedance.

The Los Angeles Water Board counters that the joint responsibility regime is consistent with the intent of the Clean Water Act and further that it does not compel a Permittee to clean up the discharge of another Permittee. The Los Angeles Water Board points to two provisions for this latter proposition. First, even with joint responsibility, Permittees that have commingled MS4 discharges need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.¹⁹⁴ Second, even where joint responsibility is presumed, a Permittee may subsequently counter the presumption of joint responsibility by

¹⁹³ “Joint responsibility” is the term used in the Los Angeles MS4 Order. (See Los Angeles MS4 Order, Part II.K.1, p. 23 (“‘Joint responsibility’ means that the Permittees that have commingled MS4 discharges are responsible for implementing programs in their respective jurisdictions, or within the MS4 for which they are an owner and/or operator, to meet the water quality-based effluent limitations and/or receiving water limitations assigned to such commingled MS4 discharges.”) As defined by the Los Angeles Water Board and as discussed below, this term does not have the same meaning and scope as the legal doctrine of “joint liability.”

¹⁹⁴ Los Angeles MS4 Order, Parts II.K.1, pp. 23-24, VI.A.4.a., p. 41; 40 C.F.R. § 122.26(a)(3)(vi); see also, *id.*, Part VI.E.2.b.ii., p. 142 (stating in the context of TMDL requirements that, where discharges are commingled and assigned a joint WLA, “each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.”)

affirmatively demonstrating that its MS4 discharge did not cause or contribute to the relevant exceedances.¹⁹⁵

Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order and the challenges inherent in designing a monitoring program that could parse out responsibility for each individual Permittee, we find that a joint responsibility regime is a reasonable approach to assigning initial responsibility for an exceedance. The Los Angeles MS4 Order provisions addressing TMDLs also appropriately take a joint responsibility approach, given that the wasteload allocations from which the WQBELs and other TMDL-specific limitations are derived are most frequently expressed as joint allocations shared by all MS4 dischargers in the watershed. We further agree with the Los Angeles Water Board that the regime is one that is permissible under applicable law. The Clean Water Act contemplates that MS4 permits may be issued on a system-wide or jurisdiction-wide basis¹⁹⁶ and the federal regulations anticipate the need for inter-governmental cooperation.¹⁹⁷ Further, the United States Court of Appeal, Ninth Circuit, recently stated in *Natural Resources Defense Council v. County of Los Angeles* (2013) 725 F.3d 1194 that the permitting authority has wide discretion concerning the terms of a permit, including the manner in which permittees share liability.¹⁹⁸

Yet, we also find that joint responsibility in an MS4 Order is only appropriate if the ultimate responsibility for addressing an exceedance rests with those permittees that actually cause or contribute to the exceedance in question. The re-issued Los Angeles MS4 Order contains additional specificity and monitoring, beyond that contained in the 2001 Los Angeles MS4 Order, to document compliance and the presence or absence of an individual municipality's contribution of pollutants to the storm water. For this reason, the general reasoning of the Ninth Circuit's 2013 *Natural Resources Defense Council v. County of Los Angeles* decision finding liability based solely on the presence of pollutants above water quality standards in the receiving waters is of limited forward-looking importance. Generally, in the context of MS4 permits, we do not sanction joint responsibility to the extent that that joint

¹⁹⁵ *Id.*, Part VI.E.2., pp.141-42; see also *id.*, Part II.K.1, pp. 23-24.

¹⁹⁶ 33 U.S.C. § 1342(p)(3)(B)(i).

¹⁹⁷ See 40 C.F.R. §§ 122.26(d)(2)(i)(D), 122.26(d)(2)(iv), 122.26(d)(2)(vii).

¹⁹⁸ *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1205, fn. 16, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135. The Ninth Circuit went on to find that, based on the specific language of the 2001 Los Angeles MS4 Order, the Permittees were jointly liable for exceedances detected by mass emissions monitoring.

responsibility would require each Permittee to take full responsibility for addressing violations, regardless of whether, and to what extent, each permittee contributed to the violation.¹⁹⁹

The Los Angeles MS4 Order does not impose such a joint responsibility regime where each Permittee must take full responsibility for addressing other Permittees' violations. In addition to clearly stating that permittees are responsible only for their contribution to the commingled discharges, the Los Angeles MS4 Order provides that Permittees may affirmatively show that their discharge did not cause or contribute to an exceedance. Joint responsibility, as applied by the Los Angeles MS4 Order, is thus consistent with our expectation that ultimate responsibility for addressing an exceedance rests with those Permittees that actually cause or contribute to the exceedance and consistent with the regulatory direction that co-permittees need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.

While the result is that the burden rests on the Permittee to demonstrate that its commingled discharge is not the source of an exceedance, rather than on the Los Angeles Water Board to demonstrate that a Permittee's commingled discharge is causing or contributing to the exceedance, the result is not contrary to law. The Los Angeles Water Board has the initial burden to show that a violation of the Los Angeles MS4 Order has occurred,²⁰⁰ but the Board can do so by establishing an exceedance of a limitation by jointly responsible Permittees and need not identify the exact source of the exceedance. This scheme represents a reasonable policy approach to a complicated compliance question where the Permittees are more closely familiar than the Los Angeles Water Board with their outfalls and their discharges in the extensive and interconnected MS4 network.

We are, however, concerned that the Los Angeles MS4 Order's treatment of the joint responsibility issue is too narrow. The Los Angeles Water Board addresses the issue of joint responsibility primarily in the context of compliance with the TMDL requirements of the Order. Commingled discharges pose the same questions of assigning responsibility where receiving water limitations are exceeded in water bodies receiving MS4 discharges from multiple jurisdictions, but where the pollutant is not addressed by a TMDL. A similar approach to

¹⁹⁹ In a "joint and several liability" scheme, a plaintiff may collect his or her entire damages from any one defendant, and the defendants must then rely on principles of indemnity or contribution to apportion ultimate liability amongst themselves. (See *American Motorcycle Assn. v. Superior Court of Los Angeles County* (1978) 20 Cal. 3d 578, 586-590.) Because the Los Angeles MS4 Order's joint responsibility scheme does not equate to joint liability, and because we do not find such liability appropriate from a policy perspective, we do not address Petitioners' legal arguments as to whether joint or joint and several liability in the storm water context would be consistent with applicable law.

²⁰⁰ See e.g. *Sackett v. E.P.A.* (9th Cir. 2010) 622 F.3d 1139 rev'd on other grounds *Sackett v. E.P.A.* (2012) 132 S. Ct. 1367.

assigning responsibility for addressing the exceedances is appropriate there. We will add new language to the Los Angeles MS4 Order mirroring Part VI.E.2.b., but applying the principles more generally.

We also take this opportunity to emphasize that all MS4 permits should be drafted to avoid one potential, but likely unintended, result arising from *Natural Resources Defense Council v. County of Los Angeles*. The broadest reading of the Ninth Circuit's holding following remand from the U.S. Supreme Court would assign joint liability to all Permittees for any exceedance at a monitoring location designated for the purpose of compliance determination, even if the particular pollutant is not typically found in storm water and has a likely alternative source such as an industrial discharger or waste water treatment plan. Providing municipalities an opportunity to demonstrate that they did not contribute to a pollutant present in receiving waters above standards will prevent this outcome.

We shall amend Part VI.B. as follows:

B. Monitoring and Reporting Program (MRP) Requirements

- 1.** Dischargers shall comply with the MRP and future revisions thereto, in Attachment E of this Order or may, in coordination with an approved Watershed Management Program per Part VI.C, implement a customized monitoring program that achieves the five Primary Objectives set forth in Part II.A. of Attachment E and includes the elements set forth in Part II.E. of Attachment E.

2. Compliance Determination for Commingled Discharges

- a. For commingled discharges addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part E as specified at Part E.2.b.**
- b. For commingled discharges not addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part V.A as follows:**
 - i. Pursuant to 40 CFR section 122.26(a)(3)(vi), each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.**
 - ii. Where Permittees have commingled discharges to the receiving water, or where Permittees' discharges commingle in the receiving water, compliance in the receiving water shall be determined for the group of Permittees as a whole unless an individual Permittee demonstrates that its discharge did not cause or contribute to the exceedance, pursuant to subpart iv. below.**

- iii. For purposes of compliance determination, each Permittee is responsible for demonstrating that its discharge did not cause or contribute to an exceedance of the receiving water limitation in the target receiving water.
- iv. A Permittee may demonstrate that its discharge did not cause or contribute to an exceedance of a receiving water limitation in one of the following ways:
 - (1) Demonstrate that there was no discharge from the Permittee's MS4 into the applicable receiving water during the relevant time period;
 - (2) Demonstrate that the discharge from the Permittee's MS4 was controlled to a level that did not cause or contribute to the exceedance in the receiving water;
 - (3) Demonstrate that there is an alternative source of the pollutant that caused the exceedance, that the pollutant is not typically associated with MS4 discharges, and that the pollutant was not discharged from the Permittee's MS4; or
 - (4) Demonstrate that the Permittee is in compliance with the Watershed Management Programs provisions under VI.C.

G. Separation of Functions in Advising the Los Angeles Water Board

Petitioners Cities of Duarte and Huntington Park (Duarte and Huntington Park) argue that their rights to due process of law were violated when the same attorneys advised both the Los Angeles Water Board staff and the Board itself in the course of the proceedings to adopt the Los Angeles MS4 Order. We disagree and reaffirm our position that permitting actions do not require the water boards to separate functions when assigning counsel to advise in development and adoption of a permit.

A water board proceeding to adopt a permit, including an NPDES permit, waste discharge requirements, or a waiver of waste discharge requirements, is an adjudicative proceeding subject to the Administrative Procedure Act's administrative adjudication statutes in Government Code section 11400 et seq.²⁰¹ Section 11425.10, part of the "Administrative Adjudication Bill of Rights," provides that "[t]he adjudicative function shall be separated from the investigative, prosecutorial, and advocacy functions with the agency" ²⁰² In accordance with

²⁰¹ See Cal. Code Regs., tit. 23, § 648, subd. (b).

²⁰² Gov. Code, § 11425.10, subd. (a)(4). Subdivision (a)(4) references section 11425.30, which addresses disqualification of a presiding officer that has served as "investigator, prosecutor, or advocate" in the proceeding or its preadjudicative stage or is subject to "the authority, direction, or discretion" of a person who has served in such roles.

this directive, the water boards separate functions in all enforcement cases, assigning counsel and staff to prosecute the case, and separate counsel and staff to advise the board.

In a permitting action, water board counsel have an advisory role, not an investigative, prosecutorial, or advocacy role. Permitting actions are not investigative in nature and there is no consideration of liability or penalties that would make the action prosecutorial in nature. Further, while both counsel and staff are expected to develop recommendations for their boards, the role of counsel and staff is not to act as an advocate for one particular position or party concerning the permitting action, but to advise the board as neutrals, with consideration of the legal, technical, and policy implications of all options before the board. In the case of counsel, such consideration and advice includes not just legal evaluation of the substantive options for permitting but also of procedural issues such as admissibility of the evidence, conduct of the hearing, and avoidance of board member conflicts. Because counsel and staff are advisors to the board rather than advocates for a particular position, the same counsel may advise staff in the course of development of the permit and the board in the adoption proceedings.

A primary purpose of separation of functions in adjudicatory proceedings is the need to prevent improper ex parte communications.²⁰³ The exceptions to the ex parte communications rules further support the position that counsel advising board staff may also advise the board itself. While section 11430.10 of the Government Code generally prohibits communications concerning issues in a pending administrative proceeding between the presiding officer and an employee of the agency that is a party,²⁰⁴ one exception provides that a communication “for the purpose of assistance and advice to the presiding officer,” in this case the board, “from a person who has not served as investigator, prosecutor, or advocate in the proceeding or its preadjudicative stage” is permissible. Even if board counsel could be considered an advocate in the proceeding, another provision (specifically referencing the water boards) excepts the communication from the general ex parte communications rules. A communication is not an ex parte communication if:

- (c) The communication is for the purpose of advising the presiding officer concerning any of the following matters in an adjudicative hearing that is nonprosecutorial in character:

²⁰³ See *Dept. of Alcoholic Beverage Control v. Alcoholic Beverage Control Appeals Bd.* (2006) 40 Cal.4th 1, 9-10.

²⁰⁴ Government Code section 11430.10 prohibits communications between an employee that is a “party” to a pending proceeding and the presiding officer. We disagree that Los Angeles Water Board staff, as an advisor to the Board, was a “party” to the proceedings for adoption of the Los Angeles MS4 Order, but, even if staff could be considered a party, the cited exceptions to the ex parte communications rules would apply.

. . .
(2) The advice involves an issue in a proceeding of the San Francisco Bay Conservation and Development Commission, California Tahoe Regional Planning Agency, Delta Protection Commission, Water Resources Control Board, or a regional water quality control board.²⁰⁵

The fact that communications that would otherwise be considered prohibited *ex parte* communications are specifically permitted in non-prosecutorial adjudicative proceedings of the water boards further supports the position that the water boards are not obligated by law to separate functions in permitting actions.

We acknowledge that there may be some unique factual circumstances under which a permitting proceeding could violate due process or the Administrative Procedure Act because board counsel either acted or gave the appearance of acting as a prosecutor or advocate. Duarte and Huntington Park point to a writ of mandate issued by the Los Angeles Superior Court in 2010,²⁰⁶ holding that a 2006 proceeding to incorporate provisions of the Santa Monica Bay Beaches TMDL into the 2001 Los Angeles MS4 Order was not fairly conducted because Los Angeles Water Board counsel had acted as an advocate for Board staff, directly examining Board staff witnesses, cross-examining witnesses called by permittees, objecting to questions asked by permittees, and making a closing argument on behalf of Board staff, while simultaneously advising the Board. The proceedings to adopt the Los Angeles MS4 Order did not follow the type of adversarial structure that led the Superior Court to find a violation of separation of functions in the 2006 proceedings.²⁰⁷ Further, nothing in the conduct of the Los Angeles Water Board attorneys in the Los Angeles MS4 Order proceedings leads us to find that they acted as advocates for a particular position or party, rather than as advisors to the Board.

²⁰⁵ Gov. Code, § 11430.30. We note that the Law Revision Commission comments on section 11430.30, subdivision (c), state that “[s]ubdivision (c) applies to nonprosecutorial types of administrative adjudications, such as . . . proceedings . . . setting *water quality protection . . . requirements*.” (Emphasis added.) The notes further state that “[t]he provision recognizes that the length and complexity of many cases of this type may as a practical matter make it impossible for any agency to adhere to the restrictions of [ex parte communications], given limited staffing and personnel.” (25 Cal.L.Rev.Comm. Reports 711 (1995).) We agree that the lengthy and complex nature of permitting proceedings, and the limited staffing resources of the water boards, caution against an expansive interpretation of separation of functions in non-prosecutorial adjudications.

²⁰⁶ *County of Los Angeles v. State Water Resources Control Board* (Super. Ct., Los Angeles Co. (June 2, 2010, Minute Order) No. BS122724) (Administrative Record, section 10.II, RB-AR23665-23667.)

²⁰⁷ We also note that, although the writ directed that petitioners were entitled to a new hearing “in which the same person does not act as both an advocate before the Board and an advisor to the Board,” the writ had no direct bearing on the separate proceedings to adopt the Los Angeles MS4 Order. In any case, as discussed, Board attorneys did not act as advocates in the proceedings to adopt the Los Angeles MS4 Order.

The two specific cases pointed to by Duarte and Huntington Park – advice by Board counsel to Board member Mary Ann Lutz regarding recusal due to ex parte communications and advice to the Board generally on the lack of a cost-benefit analysis requirement in federal law – may be contrary to the legal position held by Duarte and Huntington Park, but there is nothing in the record to suggest that the advice was driven by biased advocacy for a Board staff position.²⁰⁸ In the absence of such evidence, we find no reason to depart from the general rule that separation of functions is not required in a permitting proceeding²⁰⁹ and find that Los Angeles Water Board counsel acted in accordance with applicable laws in advising Board staff and the Board itself.

H. Signal Hill's Inclusion in the Order

The City of Signal Hill (Signal Hill) argues that the Los Angeles Water Board acted contrary to relevant law when it issued the system-wide Los Angeles MS4 Order that included Signal Hill, even though Signal Hill had submitted an application for an individual permit.²¹⁰ We disagree.

Signal Hill points out that the federal regulations allow an operator of an MS4 to choose between submitting an application jointly with one or more other operators for a joint permit or individually for a distinct permit.²¹¹ However, the choice of application does not necessarily dictate the type of permit that the permitting authority ultimately deems appropriate. The permitting authority in turn has discretion to determine if the permit should be issued on a

²⁰⁸ See Administrative Record, section 7, RB-AR18309-18316, RB-AR18397-18400 (Transcript of Proceedings on Oct. 4, 2012), section 7, RB-AR18892-18894 (Transcript of Proceedings on Oct. 5, 2012).

²⁰⁹ Although *Morongo Band of Mission Indians v. State Water Resources Control Board* (2009) 45 Cal.4th 731 concerned an enforcement proceeding and therefore is not on point for our legal determination above, we take note of the direction by the California Supreme Court that separation of functions in an administrative tribunal should not be expanded beyond its appropriate scope: “In construing the constitutional due process right to an impartial tribunal, we take a more practical and less pessimistic view of human nature in general and of state administrative agency adjudicators in particular . . . [and where proper procedure is followed and in the absence of a specific demonstration of bias or unacceptable risk of bias] we remain confident that state administrative agency adjudicators will evaluate factual and legal arguments on their merits, applying the law to the evidence in the record to reach fair and reasonable decisions.” (*Morongo Band of Mission Indians, supra*, at pp. 741-742.)

²¹⁰ Signal Hill was one of several permittees under the 2001 Los Angeles MS4 Order that elected not to submit an application jointly with the other permittees for the renewed permit. The other parties have not challenged their inclusion under the Los Angeles MS4 Order. The Los Angeles Water Board rejected Signal Hill's application as incomplete; however, our determination that the Los Angeles Water Board had the discretion to issue the system-wide Los Angeles MS4 Order is not dependent on that fact.

²¹¹ 40 C.F.R. § 122.26(a)(3)(iii). Signal Hill has also cited regulations applicable to Small MS4s at 40 Code of Federal Regulations sections 122.30 through 122.37. These regulations are not applicable here because the Los Angeles Water Board has designated the Greater Los Angeles County MS4, which includes the incorporated cities and the unincorporated areas of Los Angeles County within coastal watersheds, as a large MS4 pursuant to 40 Code of Federal Regulations section 122.26(b)(4).

jurisdictional or system-wide basis.²¹² While the federal regulations do not specifically state that, in exercising that discretion, the permitting authority may override the permit applicant's preference for an individual permit, nothing in the regulations constrains its authority to do so. Section 122.26(a)(3)(iii) of 40 Code of Federal Regulations does not require the permitting authority to take any specific action in response to the submission of an individual application. And sections 122.26(a)(3)(ii) and 122.26(a)(3)(iv) provide that the permitting authority "may issue" system-wide or distinct permits. The preamble to the regulations similarly contemplates wide discretion for the permitting authority to choose system-wide permits, including a permit that would allow an entire system in a geographical region to be designated under one permit.²¹³ Particularly because the option of a system-wide permit would be significantly frustrated if MS4 operators were allowed to opt out at their discretion, the most reasonable reading of the regulations is that the permitting authority, not the applicant, makes the ultimate decision as to the scope of the permit that will be issued. Accordingly, we find that the Los Angeles Water Board had the discretion under the relevant law to issue the Los Angeles MS4 Order with Signal Hill as a permittee.

We also find that the Los Angeles Water Board's decision regarding Signal Hill was appropriately supported by findings in the Order and in the Fact Sheet.²¹⁴ Finding C of the Los Angeles MS4 Order, as well as discussion in the Fact Sheet,²¹⁵ establishes that the Los Angeles Water Board found a system-wide permit to be appropriate for a number of reasons, including that Permittees' MS4s comprise a large interconnected system with frequently commingled discharges, that the TMDLs to be implemented apply to the jurisdictional areas of multiple Permittees, that the passage of Assembly Bill 2554²¹⁶ in 2010 provided a potential means for funding collaborative water quality improvement plans among Permittees, and that the results of an online survey conducted by Los Angeles Water Board staff showed that the

²¹² 33 U.S.C. § 1342(p)(3)(B)(i); 40 C.F.R. § 122.26(a)(1)(v), (a)(3)(ii), (a)(3)(iv).

²¹³ See 55 Fed. Reg. 47990, 48039-48043 (preamble to the Phase I regulations noting that section 122.26(a)(3)(iv) would allow an entire system in a geographical region to be designated under one permit and further discussing that sections 122.26(a)(1)(v) and (a)(3)(ii) allow the permitting authority broad discretion in issuing system-wide permits).

²¹⁴ *Topanga Assn., supra*, 11 Cal.3d at 515.

²¹⁵ Los Angeles MS4 Order, Part II.C., pp. 14-15; *id.*, Att. F, Fact Sheet, pp. F-15-F-18.

²¹⁶ Assembly Bill No. 2554, Chapter 602, an act to amend sections 2 and 16 of the Los Angeles County Flood Control Act (Chapter 755 of the Statutes of 1915), relating to the Los Angeles County Flood Control District, Sept. 30, 2010 (Administrative Record, section 10.VI.C., RB-AR29172-29179). The Bill allows the Los Angeles County Flood Control District to assess a property-related fee or charge, subject to voter approval in accordance with proposition 218, for storm water and clean water programs.

majority of Permittees favored either a single MS4 permit for Los Angeles County or several watershed-based permits.

Signal Hill points out that the reasons enumerated by the Los Angeles Water Board as grounds for issuance of a system-wide permit did not preclude the Los Angeles Water Board from issuing an individual permit to the City of Long Beach (Long Beach).²¹⁷ The Los Angeles Water Board has provided the rationale for distinguishing Signal Hill and Long Beach in its October 15, 2013 Response. The Los Angeles Water Board explains that Long Beach has had an individual permit for more than a decade and that, unlike Signal Hill, it was not permitted under the 2001 Los Angeles MS4 Order. The Board's decision to issue a separate permit to Long Beach was originally the result of a settlement agreement that resolved litigation on the MS4 permit issued by the Los Angeles Water Board in 1996, and Long Beach has a proven track record in implementing the individual permit while cooperating with Permittees under the Los Angeles MS4 Order.²¹⁸ We find that the Los Angeles Water Board reasonably distinguished between Long Beach and the Permittees under the Los Angeles MS4 Order in making determinations as to individual permitting. We will not reverse its determination but we will add a brief statement reflecting that reasoning to the Fact Sheet.

We shall amend section III.D.1.a. at page F-18, Attachment F, Fact Sheet, as follows:

The Regional Water Board determined that the cities of Signal Hill and Downey, the five upper San Gabriel River cities, and the LACFCD are included as Permittees in this Order. **In making that determination, the Regional Water Board distinguished between the permitting status of those cities and the permitting status of the City of Long Beach at this time because the City of Long Beach has a proven track record in implementing an individual permit and developing a robust monitoring program under that individual permit, as well as in cooperation with other MS4 dischargers on watershed based implementation. While all other incorporated cities with discharges within the coastal watersheds of Los Angeles County, as well as Los Angeles County and the Los Angeles County Flood Control District, are permitted under this Order,** individually tailored permittee requirements are provided in this Order, where appropriate.

²¹⁷ Signal Hill is located in the geographical middle of Long Beach and is entirely surrounded by that city.

²¹⁸ Los Angeles Water Board, October 15, 2013 Response, p. 25, fn. 78.

III. CONCLUSION

Based on the above discussion, we conclude as follows:

1. Although we are not bound by federal law or state law to require compliance with water quality standards in municipal storm water permits, we will not depart from our prior precedent regarding compliance with water quality standards. The regional water boards shall continue to require compliance with receiving water limitations in municipal storm water permits through incorporation of receiving water limitations provisions consistent with State Water Board Order WQ 99-05.
2. However, we find that municipal storm water dischargers may not be able to achieve water quality standards in the near term and therefore that it is appropriate for municipal storm water permits to incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.
3. We find that the WMP/EWMP provisions of the Los Angeles MS4 Order, with minor revisions that we incorporate herein, are an appropriate alternative to immediate compliance with receiving water limitations. The WMP/EWMP provisions are ambitious, yet achievable, and include clear and enforceable deadlines for the achievement of receiving water limitations and a rigorous and transparent process for development and implementation of the WMPs/EWMPs.
4. We find that the WMP/EWMP provisions do not violate anti-backsliding requirements.
5. We find that the WMP/EWMP provisions do not violate antidegradation requirements; however, we find that the antidegradation findings made by the Los Angeles Water Board are too cursory and revise those findings consistent with the federal and state antidegradation policies.
6. We find that issuance of time schedule orders is appropriate where a final receiving water limitations deadline set in the WMP/EWMP or a final TMDL-related deadline is not met; however we find that the WMP/EWMP compliance schedule need not otherwise be structured as an enforcement order.
7. We clarify the WMP/EWMP provisions to make it clear that final compliance with receiving water limitations and final WQBELs and other TMDL-specific limitations must be verified through monitoring.

8. We clarify the WMP/EWMP provisions to make it clear that Permittees may request extensions of deadlines incorporated into the WMPs/EWMPs except those final deadlines established in a TMDL. However, any deadline extensions must be approved by the Executive Officer after public review and comment.
9. In order to add greater rigor and accountability to the process of achieving receiving water limitations, we revise the WMP/EWMP provisions to add that the Permittees must comprehensively evaluate new data and information and revise the WMPs/EWMPs, including the supporting reasonable assurance analysis, by June 30, 2021, for approval by the Executive Officer.
10. We find that the storm water retention approach is a promising approach to achieving receiving water limitations, but also find that the Administrative Record does not support a finding that the approach will necessarily lead to achievement of water quality standards in all cases. We revise the WMP/EWMP provisions to clarify that, in the case of implementation of an EWMP with the storm water retention approach, if compliance with a final WQBEL or other TMDL-specific limitation is not in fact achieved in the drainage area, a Permittee will be considered in compliance with the relevant limitation only if the Permittee continues to adaptively manage the EWMP to achieve ultimate compliance with the WQBEL or other TMDL limitation.
11. We find reasonable the WMP/EWMP provisions that allow permittees to be deemed in compliance with receiving water limitations during the planning and development phase of the WMP/EWMP. We revise the WMP/EWMP provisions to state that, if a Permittee fails to meet one of the deadlines, the Permittee may still develop a WMP/EWMP for approval by the Los Angeles Water Board or its Executive Officer; however, the Permittee will not be deemed in compliance with receiving water limitations or WQBELs and other TMDL-specific limitations during the subsequent WMP/EWMP development period.
12. We recognize that the Los Angeles MS4 Order WMP/EWMP compliance path alternative may not be appropriate in all MS4 permits. In order to provide guidance to regional water boards preparing Phase I MS4 permits, we lay out several principles to be followed in drafting receiving water limitations compliance alternatives: Phase I MS4 permits should (1) continue to require compliance with water quality standards in accordance with our Order WQ 99-05; (2) allow compliance with TMDL requirements to constitute compliance with receiving water limitations; (3) provide for a compliance

alternative that allows permittees to achieve compliance with receiving water limitations over a period of time as described above; (4) encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements; (5) encourage the use of green infrastructure and the adoption of low impact development principles; (6) encourage the use of multi-benefit regional projects that capture, infiltrate, and reuse storm water; and (7) require rigor, accountability, and transparency in identification and prioritization of issues in the watershed, in proposal and implementation of control measures, in monitoring of water quality, and in adaptive management of the program. We expect the regional water boards to follow these principles unless the regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

13. We recognize that the success of the WMP/EWMP approach depends in large part on the steps that follow adoption of the provisions, including the development and approval of rigorous WMPs/EWMPs and the implementation and appropriate enforcement of the programs once approved. We direct the Los Angeles Water Board to periodically report specific information to the State Water Board regarding implementation of the WMPs/EWMPs, including on-the-ground structural control measures completed, monitoring data evaluating the effectiveness of such measures, control measures proposed to be completed and proposed funding and schedule, trends in receiving water quality related to storm water discharges, and compliance and enforcement data.
14. We find that the Los Angeles Water Board acted in a manner consistent with the law when establishing numeric WQBELs. We further find that the development of numeric WQBELs was a reasonable exercise of the Los Angeles Water Board's policy discretion, given its experience in developing the relevant TMDLs and the significance of storm water impacts in the region. However, we find that numeric WQBELs are not necessarily appropriate in all MS4 permits or for all parameters in any single MS4 permit.
15. We find that the Los Angeles Water Board's choice of BMP-based WQBELs, to be proposed by the Permittee in the WMP/EWMP to address USEPA-established TMDLs was reasonable.

16. We find that the Los Angeles Water Board did not act contrary to federal law when it prohibited the discharge of non-storm water “through the MS4 to receiving water” instead of “into” the MS4. Regardless of the exact wording of the prohibition, the standard that applies to non-storm water is the requirement of “effective prohibition.” However, the Los Angeles Water Board also has authority to regulate any dry weather discharges from the MS4s under the applicable TMDLs.
17. We find that the monitoring and reporting provisions of the Los Angeles MS4 Order are consistent with applicable law and reasonable.
18. We find that assigning joint responsibility for commingled discharges that cause exceedances is not contrary to applicable law. Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order, the joint responsibility regime also constitutes a reasonable policy choice. The Los Angeles MS4 Order specifically allows a permittee to avoid joint responsibility by demonstrating that its commingled discharge is not the source of an exceedance.
19. We find that representation of the Los Angeles Water Board and the Los Angeles Water Board staff by the same attorneys in the proceedings to adopt the Los Angeles MS4 Order was lawful and reasonable.
20. We find that the Los Angeles Water Board acted in a manner consistent with applicable law and reasonably when it issued a system-wide permit that included Signal Hill.

Addressing the water quality impacts of municipal storm water is a complex and difficult undertaking, requiring innovative approaches and significant investment of resources. We recognize and appreciate the commendable effort of the Los Angeles Water Board to come up with a workable and collaborative solution to the difficult technical, policy, and legal issues, as well as the demonstrated commitment of many of the area’s MS4 dischargers and of the environmental community to work with the Los Angeles Water Board in the development and implementation of the proposed solution. We also recognize the extensive work that interested persons from across the state, including CASQA, have invested in assisting us in understanding how the watershed-based alternative compliance approach developed by the Los Angeles Water Board may inform statewide approaches to addressing achievement of water quality requirements. While storm water poses an immediate water quality problem, we believe that a rigorous and transparent watershed-based approach that emphasizes low impact development, green infrastructure, multi-benefit projects, and capture, infiltration, and reuse of storm water is

a promising long-term approach to addressing the complex issues involved. We must balance requirements for and enforcement of immediate, but often incomplete, solutions with allowing enough time and leeway for dischargers to invest in infrastructure that will provide for a more reliable trajectory away from storm water-caused pollution and degradation. We believe that the Los Angeles MS4 Order, with the revisions we have made, strikes that balance at this stage in our storm water programs, but expect that we will continue to revisit the question of the appropriate balance as the water boards' experience in implementing watershed-based solutions to storm water grows.

IV. ORDER

IT IS HEREBY ORDERED that the Los Angeles MS4 Order is amended as described above in this order. The Los Angeles Water Board is directed to prepare a complete version of the Los Angeles MS4 Order (including any necessary non-substantive conforming corrections), post the conformed Los Angeles MS4 Order on its website, and distribute it as appropriate.

CERTIFICATION


The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held June 16, 2015.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Dorene D'Adamo

NAY: None

ABSENT: None

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

ATTACHMENT

10

CONFORMED (04/07/15)

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

The State Water Resources Control Board adopted Order 2012-0011-DWQ on:	September 19, 2012
The Executive Director of the State Water Resources Control Board issued Order WQ 2014-0006-EXEC on:	January 17, 2014
The State Water Resources Control Board adopted Order WQ 2014-0077-DWQ on:	May 20, 2014
The Executive Director of the State Water Resources Control Board issued Order WQ 2015-0036-EXEC on:	April 7, 2015
The amendments to Order 2012-0011-DWQ contained in Order 2015-0036-DWQ are effective on:	April 7, 2015

CERTIFICATION

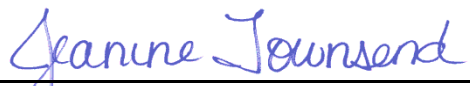
The undersigned, Clerk to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 19, 2012.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Felicia Marcus

NAY: None

ABSENT: None

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
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DEPARTMENT OF TRANSPORTATION**

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REQUIREMENTS FOR STATE OF CALIFORNIA, DEPARTMENT OF
TRANSPORTATION

- ATTACHMENT I: INCIDENT REPORT FORM
- ATTACHMENT II: MONITORING CONSTITUENT LIST
- ATTACHMENT III: ASBS PRIORITY DISCHARGE LOCATIONS
- ATTACHMENT IV: TMDL IMPLEMENTATION REQUIREMENTS
- ATTACHMENT V: REGIONAL WATER BOARD SPECIFIC REQUIREMENTS
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CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
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ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
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FOR
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DEPARTMENT OF TRANSPORTATION**

FINDINGS

The State Water Resources Control Board (State Water Board) finds that:

Permit Application

1. The State of California, Department of Transportation (hereafter the Department) has applied to the State Water Board for reissuance of its statewide storm water permit and waste discharge requirements to discharge storm water and permitted non-storm water to waters of the United States under the National Pollutant Discharge Elimination System (NPDES) permit program.

Background and Authority

Permit Background

2. Prior to issuance of the Department's first statewide storm water permit (Order No. 99-06-DWQ), the Regional Water Boards regulated storm water discharges from the Department's storm drain systems with individual permits. On July 15, 1999, the State Water Board adopted a statewide permit to consolidate storm water permits previously adopted by the Regional Water Boards. This statewide permit regulates storm water and non-storm water discharges from the Department's properties and facilities, and discharges associated with operation and maintenance of the State highway system. The Department's properties include all Right-of-Way (ROW) owned by the Department. The Department's facilities include, but are not limited to, maintenance stations/yards, equipment storage areas, storage facilities, fleet vehicle parking and maintenance areas and warehouses with material storage areas.

Federal Authority

3. In 1987, the United States Congress amended the federal Clean Water Act (CWA) and added section 402(p), which established a framework for regulating municipal and

industrial storm water discharges under the NPDES Permit Program. On November 16, 1990, the U.S. Environmental Protection Agency (U.S. EPA) promulgated federal regulations for controlling pollutants in storm water runoff discharges (known as Phase I storm water regulations). Phase I storm water regulations require permit coverage for storm water discharges from large and medium Municipal Separate Storm Sewer Systems (MS4s), certain categories of industrial facilities, and construction activities disturbing five or more acres of land. On December 8, 1999, U.S. EPA promulgated regulations, known as Phase II storm water regulations, which require NPDES permit coverage for storm water discharges from small MS4s and construction sites which disturb one to five acres of land.

State Authority

4. California Water Code (Wat. Code) section 13376 provides that any person discharging or proposing to discharge pollutants to waters of the United States within the jurisdiction of the state shall apply for and obtain Waste Discharge Requirements (WDRs). (For this permit, the State term “WDRs” is equivalent to the federal term “NPDES permits” as used in the Clean Water Act). The State Water Board issues this Order pursuant to section 402 of the Clean Water Act and implementing regulations adopted by U.S. EPA and chapter 5.5, division 7 of the California Water Code (commencing with § 13370 et seq.). It shall serve as an NPDES permit for point source discharges to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with § 13260 et seq.). Applicable State regulations on discharges of waste are contained in the California Code of Regulations (Cal. Code Regs.), tit. 23, Division 3, Chapter 9.

Storm Water Definition

Storm Water Discharge

5. Storm water discharges consist only of those discharges that originate from precipitation events. Storm water is defined in the Code of Federal Regulations (40 C.F.R. § 122.26(b)(13)) as storm water runoff, snowmelt runoff, and surface runoff and drainage. During precipitation events, storm water picks up and transports pollutants into and through MS4s and ultimately to waters of the United States.

Non-Storm Water Discharge

6. Non-storm water discharges consist of all discharges from an MS4 that do not originate from precipitation events.

Generally, non-storm water discharges to an MS4 are prohibited, conditionally exempt from prohibition, or regulated separately by an NPDES permit. The categories of conditionally exempt non-storm water discharge are specified at 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(1). Non-storm water discharges that are regulated by a separate NPDES permit are not subject to the discharge prohibition. Prohibited non-storm water discharges include conditionally exempt discharges that are found to be a source of pollutants to waters of the United States. Illicit discharges must also be prohibited. An illicit discharge is defined in 40 Code of Federal Regulations section 122.26(b)(2) as "any discharge to a municipal storm sewer that is not composed entirely of storm water except

discharges pursuant to an NPDES permit (other than the NPDES Permit for discharges from the Municipal Separate Storm Sewer System) and discharges resulting from fire fighting activities." Provision B of this Order addresses non-storm water discharge.

Non-storm water discharges to an MS4 with a discharge to an ASBS are subject to a different set of conditions as stated in Finding 22.a.

Performance Standards

Performance Standard for Discharges from MS4s

7. Clean Water Act section 402(p) establishes performance standards for discharges from MS4s. Clean Water Act section 402(p)(3)(B) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." This Order prohibits storm water discharges that do not comply with the maximum extent practicable (MEP) standard.
8. Compliance with the MEP standard involves applying Best Management Practices (BMPs) that are effective in reducing or eliminating the discharge of pollutants to the waters of the United States. MEP emphasizes pollutant reduction and source control BMPs to prevent pollutants from entering storm water runoff. MEP may require treatment of the storm water runoff if it contains pollutants. BMP development is a dynamic process, and the menu of BMPs contained in a SWMP may require changes over time as experience is gained and/or the state of the science and art progresses. MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. The State Water Board has held that "MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the costs would be prohibitive." (SWRCB, 2000b).

Permit Coverage and Scope

Discharges Regulated by this Permit

9. This Order regulates the following discharges:
 - a. Storm water discharges from all Department-owned MS4s;
 - b. Storm water discharges from the Department's vehicle maintenance, equipment cleaning operations facilities and any other non-industrial facilities with activities that have the potential of generating significant quantities of pollutants; and
 - c. Certain categories of non-storm water discharges as listed under provision B. of this Order.

This Order does not regulate storm water discharges from leased office spaces, Department owned batch plants or any other industrial facilities, as industrial facilities defined in the Statewide Industrial General Permit. The Department will obtain coverage

for storm water discharges associated with industrial activities under the Statewide Industrial General Permit for each batch plant and industrial facility, and shall comply with applicable requirements. While this Order does not regulate storm water discharges associated with industrial activities, it does impose contractor requirements for certain industrial facilities.

This Order does not regulate discharges from the Department's construction activities, including dewatering effluent discharges from construction projects. Instead, the Department will obtain coverage for storm water discharges associated with construction activities under Order No. 2009-0009-DWQ Statewide Construction General Permit. While this Order does not regulate storm water discharges associated with construction activities, it does impose electronic filing, notification, reporting and contractor requirements for certain construction projects, and imposes limitations on types of materials that may be used during construction which may have an impact on post-construction discharges. Any discharges from a site occurring after completion of construction are fully subject to the requirements of this Order.

Some Regional Water Boards have issued specific requirements for dewatering effluent discharges in their regions. The Department will consult with the appropriate Regional Water Board and comply with the applicable dewatering requirements in each region.

Department Activities and Discharges

Department Activities

10. The Department is primarily responsible for the design, construction, management, and maintenance of the State highway system including; freeways, bridges, tunnels, and facilities such as corporation yards, maintenance facilities, rest areas, weigh stations, park and ride lots, toll plazas and related properties. The Department is also responsible for initial emergency spill response and cleanup for unauthorized discharges of waste within the Department's ROW.

Department Discharges

11. The Department's discharges include storm water and non-storm water discharges generated from:
 - a. Maintenance and operation of State-owned ROW;
 - b. Department storage and disposal areas;
 - c. Department facilities;
 - d. Department Airspaces; and
 - e. Other properties and facilities owned and operated by the Department.

The Department discharges either directly to surface waters or indirectly through municipal storm water conveyance systems. These surface waters include creeks, rivers, reservoirs, wetlands, saline sinks, lagoons, estuaries, bays, and the Pacific Ocean and tributaries thereto, some or all of which are waters of the United States as defined in 40 Code of

Federal Regulations section 122.2. As specified, this Order regulates the Department's municipal storm water and non-storm water discharges.

Potential Pollutants

12. Discharges of storm water and non-storm water from Department properties, facilities, and activities have been shown to contribute pollutants to waters of the United States. As such, these discharges may be causing or threatening to cause violations of water quality objectives and can have damaging effects on human health and aquatic ecosystems. The quality and quantity of these discharges vary considerably and are affected by many environmental factors including hydrology, geology, land use, climatology and chemistry, and by controllable management factors including maintenance practices, spill prevention and response activities, public education (i.e., concerning trash and other storm water pollutants) and pollution prevention.

Pollutant sources from the Department properties, facilities, and activities include motor vehicles, highway surface materials such as fine particles of asphalt and concrete, highway maintenance products, construction activities, erodible shoulder materials, eroding cut and filled slopes, abrasive sand and deicing salts used in winter operations, abraded tire rubber, maintenance facilities, illegal connections, illegal dumping, fluids from accidents and spills, and landscape care products.

Pollutant categories include, but are not limited to, metals (such as copper, lead, and zinc), synthetic organic compounds (pesticides), Polycyclic Aromatic Hydrocarbons (PAHs) from vehicle emissions, oil and grease, Total Petroleum Hydrocarbons (TPH), sediment, nutrients (nitrogen and phosphorus fertilizers), debris (trash and litter), pathogens, and oxygen demanding substances (decaying vegetation, animal waste, and other organic matter).

Characterization Monitoring

13. Under the previous permit (Order No. 99-06-DWQ), the Department conducted a comprehensive, multi-component storm water monitoring program. The Department monitored and collected pollutant characterization information at more than 180 sites statewide, yielding more than 60,000 data points. The Department used the data to evaluate the effectiveness of the Department's maintenance facility pollution prevention plans and highway operation control measures. This information is also used to identify pollutants of concern in the Department's discharges.

Department Discharge Characterization Studies

14. The Department compared the monitoring results from the 2002 and 2003 Runoff Characterization Studies (California Department of Transportation, 2003)¹ to California Toxics Rule (CTR) objectives and to several surface water quality objectives considered potentially relevant to storm water runoff quality. The Department prioritized constituents as high, medium, and low, according to a percentage estimate by which the most stringent water quality objective was exceeded. The Department identified lead, copper, zinc,

¹ References are found in Attachment X of this Order.

aluminum, diazinon, chlorpyrifos, and iron as high priority constituents in the Department's runoff. The sources of other water quality objectives considered were:

- a. National Primary Drinking Water Maximum Contaminant Levels (40 C.F.R., § 141.1);
- b. U.S. EPA Action Plan for Beaches and Recreational Waters;
- c. U.S. EPA Aquatic Life Criteria;
- d. California Department of Public Health Maximum Contaminant Levels; and California Department of Fish and Game Recommended Criteria for Diazinon and Chlorpyrifos.

Department Discharges that are Subject to MS4 Permit Regulations

15. An MS4 is a conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains. An MS4 is designed or used for collecting or conveying storm water. It is not a combined sanitary sewer and is not part of a Publicly Owned Treatment Works (POTW). Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. All MS4s under the Department's jurisdiction are considered one system, and are regulated by this Order. Therefore, all storm water and exempted and conditionally exempted non-storm water discharges from the Department owned MS4 are subject to the requirements in this Order.

Maintenance and Construction Activities not Subject to the Construction General Permit

16. Some maintenance and construction activities such as roadway and parking lot repaving and resurfacing may not be subject to the Construction General Permit. Such activities may involve grinding and repaving the existing surface and have the potential to mobilize pollutants, even though it may not involve grading or land disturbance. The Department's Maintenance Staff Guide (Department, 2007b), Project Planning and Design Guide (Department, 2010) and the California Stormwater Quality Association (CASQA) California Construction Stormwater BMP Handbook (CASQA, 2009) specify BMPs for paving and grinding operations. The Department is required to implement BMPs for such operations to control the discharge of pollutants to the MEP.

Department Construction Projects Involving Lead Contaminated Soils

17. Department construction projects may involve soils that contain lead in quantities that meet the State definition of hazardous waste but not the federal definition. The Department of Toxic Substances Control (DTSC) has issued a variance (V09HQSCD006) effective July 1, 2009, allowing the Department to place soil containing specific concentrations of aerially deposited lead under pavement or clean soil. In addition to complying with the terms of the variance, the Department also needs to notify the appropriate Regional Water Boards to determine the appropriate regulation of these soils.
18. Past monitoring data show that storm water runoff from the Department's facilities contains pollutants that may adversely affect the beneficial uses of receiving waters. Facilities not

subject to the Industrial General Permit are required to implement BMPs to reduce the discharge of pollutants from these facilities to the MEP.

Provisions of This Order

19. Storm water discharges from MS4s are highly variable in frequency, intensity, and duration, and it is difficult to characterize the amount of pollutants in the discharges. In accordance with 40 Code of Federal Regulations section 122.44(k)(2), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits. This Order requires implementation of BMPs to control and abate the discharge of pollutants in storm water to the MEP. To assist in determining if the BMPs are effectively achieving MEP standards, this Order requires effluent and receiving water monitoring. The monitoring data will be used to determine the effectiveness of the applied BMPs and to make appropriate adjustments or revisions to BMPs that are not effective.

Receiving Water Limitations

20. The effect of the Department's storm water discharges on receiving water quality is highly variable. For this reason, this Order requires the Department to implement a storm water program designed to achieve compliance with water quality standards, over time through an iterative approach. If discharges are found to be causing or contributing to an exceedance of an applicable Water Quality Standard, the Department is required to revise its BMPs (including use of additional and more effective BMPs).

Discharges to Areas of Special Biological Significance

21. The State Water Board has designated 34 coastal marine waters as Areas of Special Biological Significance (ASBS) in the California Ocean Plan. An ASBS is a coastal area requiring protection of species or biological communities. The Department discharges storm water into the following ASBS:
 - a. Redwoods National Park ASBS
 - b. Saunders Reef ASBS
 - c. James V. Fitzgerald ASBS
 - d. Año Nuevo ASBS
 - e. Carmel Bay ASBS
 - f. Point Lobos ASBS
 - g. Julia Pfeiffer Burns ASBS
 - h. Salmon Creek Coast ASBS
 - i. Laguna Point to Latigo Point ASBS
 - j. Irvine Coast ASBS
22. The Ocean Plan prohibits waste discharges into ASBS. The Ocean Plan allows the State Water Board to grant exceptions to this prohibition, provided that: (1) the exception will not compromise protection of ocean waters for beneficial uses, and (2) the public interest will be served. The Department has applied for and been granted an exception under the General Exception for Storm Water and Non-Point Source Discharges to ASBS. The exception

allows the continued discharge into ASBS provided the Department complies with the special protections specified in the General Exception.

- 22a. Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally. In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order.

New Development and Re-development Design Standards

23. 40 Code of Federal Regulations section 122.26(d)(2)(iv)(A)(2) requires municipal storm water permittees to implement a new development and redevelopment program to reduce the post-construction generation and transport of pollutants. Development can involve grading and soil compaction, an increase in impervious surfaces (roadways, roofs, sidewalks, parking lots, etc.), and a reduction of vegetative cover, all of which increase the amount of rainfall that ends up as runoff, and decrease the particle size and the load of watershed sediment. The increase in runoff generally leads to increased pollutant loading from watersheds, even if post-construction pollutant concentrations are similar to pre-construction concentrations. The accelerated erosion and deposition resulting from an increase in runoff and a decrease in the size and load of watershed sediment generally causes a stream channel to respond by deepening and widening and detaching from the historic floodplain. The magnitude of response depends on geology, land use, and channel stability at the time of the watershed disturbance. Increased pollutant loads and alteration of the runoff/sediment balance have the potential to negatively impact the beneficial uses of receiving waters including streams, lakes, wetlands, ground water, oceans, bays and estuaries, and the biological habitats supported by these aquatic systems.

24. Department projects have the potential to negatively impact stream channels and downstream receiving waters through modification of the existing runoff hydrograph. The hydromodification requirements in this Order are “effluent limitations,” which are defined by the Clean Water Act to include any restriction on the quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources (C.W.A., § 502(11)).
25. Waters of the United States supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes affected by Department activities. This Order requires the Department to submit to the State Water Board the annual report required under Article 3.5 of the Streets and Highways Code reporting on the Department’s progress in locating, assessing, and remediating barriers to fish passage.
26. Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID uses site design and storm water management to maintain the site’s pre-project runoff rates and volumes by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source.
27. On October 5, 2000, the State Water Board adopted a precedential decision concerning the use of Standard Urban Storm Water Mitigation Plans (SUSMPs) (Order WQ 2000-11). The SUSMP in that case required sizing design standards for post-construction BMPs for specific categories of new development and redevelopment projects. Order WQ 2000-11 found that provisions in the SUSMPs, as revised in the order, reflected MEP. The LID requirements, post-construction requirements for impervious surface and the design standards in this Order are consistent with Order WQ 2000-11 and meet the requirement for development of a SUSMP.

Self-Monitoring Program

28. Effluent and receiving water monitoring are necessary to evaluate the effectiveness of BMP measures and to track compliance with water quality standards. This Order requires the Department to conduct effluent and receiving water monitoring.

Storm Water Management Plan (SWMP)

29. The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management

Practices (BMP) controls and many other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007. The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

30. The SWMP and any future modifications or revisions are integral to and enforceable components of this Order. Any documents incorporated into the SWMP by reference that specify the manner in which the Department will implement the SWMP shall be consistent with the requirements of this Order.
31. This Order requires the Department to submit an Annual Report each year to the State Water Board. The Annual Report serves the purpose of evaluating, assessing, and reporting on each relevant element of the storm water program, and revising activities, control measures, BMPs, and measurable objectives, as necessary, to meet the applicable standards.
32. Revisions to the SWMP requiring approval by the State Water Board's Executive Director are subject to public notice and the opportunity for a public hearing.

Total Maximum Daily Load (TMDL) Requirements

33. TMDLs are calculations of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations or WLAs) and non-point sources (load allocations or LAs), plus the contribution from background sources and a margin of safety (40 C.F.R., § 130.2, subd.(i)). Discharges from the Department's MS4 are considered point source discharges.
34. This Order implements U.S. EPA-approved or U.S. EPA-established TMDLs applicable to the Department. This Order requires the Department to comply with all TMDLs listed in Attachment IV. Attachment IV identifies TMDLs adopted by the Regional Water Boards and approved by the State Water Board and U.S. EPA that assign the Department a Waste Load Allocation (WLA) or that specify the Department as a responsible party in the implementation plan. In addition, Attachment IV identifies TMDLs established by U.S. EPA that specify the Department as a responsible party or that identify NPDES permitted storm water sources or point sources generally, or identify roads generally, as subject to the TMDL. In accordance with 40 Code of Federal Regulations section 122.44, subdivision (d)(1)(vii)(B), NPDES water quality-based effluent limitations (WQBELs) must be consistent with the assumptions and requirements of available TMDL WLAs. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. The TMDL requirements in this Order are consistent with the assumptions and requirements of the TMDLs applicable to the Department.

35. TMDL WLAs in this Order are not limited by the MEP standard. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric WQBELs, federal regulations (40 C.F.R., § 122.44, subd. (k)(2)) allow for the implementation of BMPs to control or abate the discharge of pollutants from storm water.
36. The Department reported in its 2008-09 Annual Report to the State Water Board that it is subject to over 50 TMDLs and is in the implementation phase of over 30 TMDLs. The State Water Board has since determined that the Department is subject to 84 TMDLs. WLAs and LAs for some TMDLs are shared jointly among several dischargers, with no specific mass loads assigned to individual dischargers. In some of these cases, multiple dischargers are assigned a grouped or aggregate waste load allocation, and each discharger is jointly responsible for complying with the aggregate waste load allocation.
37. The high variance in the level of detail and specificity in the TMDLs developed by the Regional Water Boards and U.S. EPA necessitates the development of more specific permit requirements in many cases, including deliverables and required actions, derived from each TMDL's WLA and implementation requirements. These requirements will provide clarity to the Department regarding its responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to notice and a public comment period. Because most of the TMDLs were developed by the Regional Water Boards, and because some of the WLAs are shared by multiple dischargers, the development of TMDL-specific permit requirements has been coordinated initially at the Regional Water Board level.
38. Attachment IV specifies TMDL-specific permit implementation requirements for the Lake Tahoe sediment and nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. These requirements are consistent with the assumptions and requirements of applicable WLAs assigned to the Department, and with the adopted and approved TMDL, Basin Plan, and related Regional Water Board Orders and Resolutions.
39. For all remaining TMDLs identified in Attachment IV, the Regional Water Boards, in consultation with the State Water Board and the Department, developed categorical pollutant permit requirements. The Fact Sheet contains supporting analyses explaining how the proposed categorical pollutant permit requirements will implement the TMDL and are consistent with the assumptions and requirements of any applicable WLA and how the BMPs will be sufficient to implement applicable WLAs. Following a notice and comment period, Attachment IV of this Order and the Fact Sheet was reopened consistent with provision E.11.c. for incorporation of these requirements and supporting analysis into the Order and Fact Sheet.
40. This Order specifies the requirements to be followed for the Comprehensive TMDL Monitoring Plan. TMDL monitoring requirements are found in Attachment IV, Section III.A. The Regional Water Boards may require additional monitoring through Regional Water Board orders pursuant to Water Code section 13383.

41. Attachment IV may additionally be reopened consistent with provision E.11.b. of this Order for incorporation of newly adopted TMDLs or amendments to existing TMDLs into the Permit.

Non-Compliance

42. NPDES regulations require the Department to notify the Regional Water Board and/or State Water Board of anticipated non-compliance with this Order (40 C.F.R., § 122.41(l)(2)); or of instances of non-compliance that endanger human health or the environment (40 C.F.R., § 122.41(l)(6)).

Regional Water Board and State Water Board Enforcement

43. The Regional Water Boards and the State Water Board will enforce the provisions and requirements of this Order.

Region Specific Requirements

Basin Plans

44. Each Regional Water Board has adopted a Basin Plan for the watersheds within its jurisdiction. Basin Plans identify the beneficial uses for each water body and the water quality objectives necessary to protect them. The Department is subject to the prohibitions and requirements of each Basin Plan.

Region Specific Requirements

45. Regional Water Boards have identified Region-specific water quality issues and concerns pertaining to discharges from the Department's properties. Region-specific requirements to address these issues are included in this Order.

Local Municipalities and Preemption

46. Storm water and non-storm water from MS4s that are owned and managed by other NPDES permitted municipalities may discharge to storm water conveyance systems owned and managed by the Department. This Order does not supersede the authority of the Department to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within its jurisdiction as allowed by State and federal law.

Storm water and non-storm water from the Department's ROW, properties, facilities, and activities may discharge to storm water conveyance systems managed by other NPDES permitted municipalities. This Order does not preempt or supersede the authority of the permitted municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law.

Anti-Degradation Policy

47. 40 Code of Federal Regulations section 131.12 requires that state water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution No.

68-16. Resolution No. 68-16 incorporates the federal anti-degradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plans implement, and incorporate by reference, both the State and federal anti-degradation policies. This Order is consistent with the anti-degradation provision of 40 Code of Federal Regulations section 131.12 and State Water Board Resolution No. 68-16.

Endangered Species Act

48. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2115.5) or the Federal Endangered Species Act (16 U.S.C.A., §§ 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the United States. The Department is responsible for meeting all requirements of the applicable Endangered Species Act.

California Environmental Quality Act (CEQA)

49. The action to adopt an NPDES Permit is exempt from the provisions of CEQA (Public Resources Code, § 21100, et. seq.), pursuant to section 13389 of the California Water Code (County of Los Angeles et al., v. California Water Boards et al., (2006), 143 Cal.App.4th 985).

Public Notification

50. The Department, interested agencies, and persons have been notified of the State Water Board's intent to reissue requirements for storm water discharges and have been provided an opportunity to submit their written comments and recommendations. State Water Board staff prepared a Fact Sheet and Response to Comments, which are incorporated by reference as part of this Order.

Public Hearing

51. The State Water Board, through public testimony in public meetings and in written form, has received and considered all comments pertaining to this Order.

Cost of Compliance

52. The State Water Board has considered the costs of complying with this Order and whether the required BMPs meet the minimum "maximum extent practicable" standard required by federal law. The MEP approach is an evolving, flexible, and advancing concept, which considers technical and economic feasibility. Because of the numerous advances in storm water regulation and management and the size of the Department's MS4, the Order does not require the Department to fully incorporate and implement all advances in a single permit term, but takes an incremental approach that allows for prioritization of efforts for the most effective use of the increased, but nevertheless limited, Department funds. This Order will have an effect on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-

construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges.² These incremental costs are necessary to advance the controls and management of storm water by the Department and to facilitate reduction of the discharge of pollutants to the MEP.

53. This Order supersedes Order No. 99-06-DWQ.

54. This Order serves as an NPDES permit pursuant to Clean Water Act section 402 or amendments thereto, and shall become effective on July 1, 2013, provided that the Regional Administrator, U.S. EPA, Region IX, expresses no objections.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereafter, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereafter, that the Department shall comply with the following:

A. GENERAL DISCHARGE PROHIBITIONS

1. Storm water discharges from the Department's Municipal Separate Storm Sewer System (MS4) containing pollutants that have not been reduced to the Maximum Extent Practicable (MEP), are prohibited. The Department shall achieve the pollutant reductions described in this Prohibition through implementation of the provisions in this Order and the approved SWMP.
2. Discharges to Areas of Special Biological Significance (ASBS).
 - a. Existing storm water discharges into an ASBS are allowed only if the discharges:
 - 1) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;
 - 2) Are designed to prevent soil erosion;
 - 3) Occur only during wet weather; and
 - 4) Are composed of only storm water runoff, except as provided at B.6.
 - b. Discharges composed of storm water runoff shall not alter natural water quality in an ASBS.
 - c. The discharge of trash is prohibited.
 - d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no

² Although the cost of compliance with TMDL waste load allocations was considered, compliance with TMDLs is not subject to the MEP standard.

additional pollutant loading). “Existing storm water outfalls” are those that were constructed or under construction prior to January 1, 2005. “New contribution of waste” is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

- e. The discharges comply with all terms, prohibitions, and special conditions contained in sections E.2.c.2)a)i) and E.5. of this Order.
3. Discharge of material other than storm water, or discharge that is not composed entirely of storm water, to waters of the United States or another permitted MS4 is prohibited, except as conditionally exempted under Section B.2 of this Order or authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit.
4. The discharge of storm water or conditionally exempt non-storm water that causes or contributes to the violation of water quality standards or water quality objectives (collectively WQSs), the California Toxics Rule (CTR), or impairs the beneficial uses established in a Water Quality Control Plan, or a promulgated policy of the State or Regional Water Boards, is prohibited. The Department shall comply with all discharge prohibitions contained in Regional Water Board Basin Plans.
5. The discharge of storm water to surface waters of the United States in a manner causing or threatening to cause a condition of pollution or nuisance as defined in Water Code section 13050 is prohibited.
6. Discharge of wastes or wastewater from road-sweeping vehicles or from other maintenance activities to any waters of the United States or to any storm drain leading to waters of the United States is prohibited unless in compliance with section E.2.h.3)c)ii) of this Order or authorized by another NPDES permit.
7. The dumping, deposition, or discharge of waste by the Department directly into waters of the United States or adjacent to such waters in any manner that may allow its being transported into the waters is prohibited unless authorized by the Regional Water Board.
8. The discharge of sand, silt, clay, or other earthen materials from any activity in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the United States or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.

B. NON-STORM WATER DISCHARGE PROHIBITIONS

Non-storm water discharges, other than those to ASBS, must comply with the following provisions:

1. The Department shall effectively prohibit non-storm water discharges into its storm water conveyance system unless such discharges are either:
 - a. Authorized by a separate NPDES permit; or
 - b. Conditionally exempt in accordance with provision B.2. of this NPDES permit
2. Conditionally Exempt Non-storm Water Discharges.

The following non-storm water discharges are conditionally exempt from Prohibition B.1 unless the Department or the State Water Board Executive Director identifies them as sources of pollutants to receiving waters. For discharges identified as sources of pollutants, the Department shall either eliminate the discharge or otherwise effectively prohibit the discharge.

- a. Diverted stream flows;
 - b. Rising ground waters;
 - c. Uncontaminated ground water infiltration (as defined at 40 C.F.R., § 35.2005(20)) to MS4s;
 - d. Uncontaminated pumped ground water;
 - e. Foundation drains, including slope lateral drains;
 - f. Springs;
 - g. Water from crawl space pumps;
 - h. Footing drains;
 - i. Air conditioning condensation;
 - j. Flows from riparian habitats and wetlands;
 - k. Water line flushing³;
 - l. Minor, incidental discharges of landscape irrigation water⁴;
 - m. Discharges from potable water sources³;
 - n. Irrigation water⁵;
 - o. Minor incidental discharges from lawn watering;
 - p. Individual residential car washing; and
 - q. Dechlorinated swimming pool discharges.
3. Some Regional Water Boards have separate dewatering and/or “de minimus” NPDES discharge permits or Basin Plan requirements for some or all of these listed non-storm water discharges. The Department shall check with the appropriate Regional Water Board to determine if a specific non-storm water discharge requires coverage under a separate NPDES permit.
 4. The Department is not required to prohibit emergency fire fighting flows (i.e., flows necessary for the protection of life or property). Discharges associated with emergency

³ In order to remain conditionally exempt, discharges shall be dechlorinated prior to discharge.

⁴ In order to remain conditionally exempt, landscape irrigation systems must be designed, operated and maintained to control non-incidental runoff. See definition of incidental runoff in Attachment VIII.

⁵ Return flows from irrigated agriculture are not point-source discharges and are not prohibited from entering the Department’s MS4.

firefighting do not require BMPs, but they are recommended if feasible. As part of the SWMP, the Department shall develop and implement a program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) as specified in the SWMP.

5. If the State Water Board Executive Director determines that any category of conditionally exempt non-storm water discharge is a source of pollutants, the State Water Board Executive Director may require the Department to conduct additional monitoring and submit a report on the discharges. The State Water Board Executive Director may also order the Department to cease a non-storm water discharge if it is found to be a source of pollutants.

Non-storm water discharges to ASBS must comply with the following provisions:

6. Non-storm water discharges to ASBS are prohibited except as stated in this Section.

The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability, or occur naturally:

- a. Discharges associated with emergency fire fighting operations.
- a. Foundation and footing drains.
- b. Water from crawl space or basement pumps.
- c. Hillside dewatering.
- d. Naturally occurring groundwater seepage via a storm drain.
- f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

Discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are permitted if such discharges are authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. A Regional Water Board may nonetheless prohibit a specific discharge from a utility vault or underground structure if it determines that the discharge is causing the MS4 discharge to the ASBS to alter natural ocean water quality in the ASBS.

Additional non-storm water discharges to a segment of the Department's MS4 with a direct discharge to an ASBS are allowed only to the extent the relevant Regional Water Board finds that the discharge does not alter natural ocean water quality in the ASBS.

Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan or alter natural ocean water quality in an ASBS.

C. EFFLUENT LIMITATIONS

The Department shall reduce the discharge of pollutants from its MS4 to waters of the United States to the MEP, as necessary to achieve TMDL WLAs established for discharges by the Department, and to comply with the Special Protections for discharges to ASBS.

D. RECEIVING WATER LIMITATIONS

1. Receiving water quality objectives, as specified in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, are applicable to discharges from the Department's facilities and properties.
2. The discharge of storm water from a facility or activity shall not cause or contribute to an exceedance of any applicable water quality standard.
3. Storm water discharges shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the United States:
 - a. Floating or suspended solids, deposited macroscopic particulate matter, or foam;
 - b. Bottom deposits or aquatic growth;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin, and/or;
 - e. Toxic or deleterious substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
4. The Department shall comply with Sections A.4, D.2 and D.3 of this Order through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this Order including any modifications. The SWMP shall be designed to achieve compliance with Sections A.4, D.2 and D.3 of this Order. If exceedance(s) of WQS persist notwithstanding implementation of the SWMP and other requirements of this Order, the Department shall assure compliance with Sections A.4, D.2 and D.3 of this Order by complying with the procedure specified at Section E.2.c.6)c) of this Order.
5. Provided the Department has complied with the procedure set forth in provision E.2.c.6)c) of this Order and is implementing the revised SWMP required by provision E.1., the Department is not required to repeat the procedure called for in provision E.2.c.6)c) for continuing or recurring exceedances of the same receiving water limitations unless directed by the State Water Board's Executive Director or Regional Water Board Executive Officer to develop additional BMPs.

6. Where the Department discharges waste to a water of the State that is not a water of the United States, compliance with the prohibitions, limitations, and provisions of this Order when followed for that water of the State will constitute compliance with the requirements of the Porter-Cologne Water Quality Control Act, unless the Department is notified otherwise in writing by the State Water Board Executive Director or a Regional Water Board Executive Officer.

E. PROVISIONS

1. Storm Water Management Plan (SWMP)

- a. The Department shall update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order as outlined in E.1.b below. The Department shall submit for Executive Director approval an updated SWMP consistent with the provisions and requirements of this Order within one year of the effective date of this Order. The SWMP shall identify and describe the BMPs that shall be used. The SWMP shall be reviewed annually and modified as necessary to maintain an effective program in accordance with the procedures of this Order. The SWMP shall reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible.
- b. The SWMP shall contain the following elements:
 - 1) Overview
 - 2) Management And Organization
 - 3) Monitoring And Discharge Characterization Program
 - 4) Project Planning And Design
 - 5) BMP Development and Implementation
 - 6) Construction
 - 7) Compliance with the Industrial General Permit
 - 8) Maintenance Program Activities, including facilities operations
 - 9) Non-Departmental Activities
 - 10) Non-Storm Water Activities/ Discharges
 - 11) Training
 - 12) Public Education and Outreach
 - 13) Region Specific Activities (See provision E.6 and Attachment V.)
 - 14) Program Evaluation
 - 15) Measurable Objectives
 - 16) Reporting
 - 17) References

The Department shall implement all requirements of this Order regardless of whether those requirements are addressed by an element of the SWMP.

- c. The SWMP shall include all provisions and commitments in the 2003 SWMP (Department, 2003c), as revised in response to U.S. EPA's Findings of Violation and Order for Compliance (U.S. EPA Docket No. C.W.A.-09-2011-0001). The Department shall continue to implement the 2003 SWMP to the extent that it does not conflict with the requirements of this Order and until a new SWMP is approved pursuant to this Order.
- d. All policies, guidelines, and manuals referenced by the SWMP and related to storm water are intended to facilitate implementation of the SWMP, and shall be consistent with the requirements of this Order.
- e. The SWMP shall define terms in a manner that is consistent with the definitions in 40 Code of Federal Regulations section 122.2. This includes, but is not limited to, the definitions for pollutant, waters of the United States, and point source. Where there is a conflict between the SWMP and the language of this Order, the language of this Order shall govern.
- f. Unless otherwise specified in this Order, proposed revisions to the SWMP shall be submitted to the State Water Board Executive Director as part of the Annual Report. The Department shall revise all other appropriate manuals to reflect modifications to the SWMP.
- g. Revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board's website and via the storm water electronic notification list. During the public notice period, members of the public may submit written comments or request a public hearing. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised at the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing prior to approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director shall consider all public comments received and may approve the SWMP revision if it meets the conditions set forth in this Order. Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.
- h. The Department shall maintain for public access on its website the latest approved version of the SWMP. The Department shall update the SWMP on its website within 30 days of approval of revisions by the State Water Board.

2. Storm Water Program Implementation Requirements

a. Overview

The Department shall provide an overview of the storm water program in the SWMP. The overview will include:

- 1) A statement of the SWMP purpose;
- 2) A description of the regulatory background;
- 3) A description of the SWMP applicability;
- 4) A description of the relationship of the Permit, SWMP, and related Department documents; and
- 5) A description of the permits addressed by the SWMP.

b. Management and Organization

The Department shall provide in the SWMP an overview of its management and organizational structure, roles and responsibilities of storm water personnel, a description of the role and focal point of the Department's storm water program, and a description of the Storm Water Advisory Teams. The Department shall implement the program specified in the SWMP. The Department shall also implement any additional requirements contained in this Order.

1) *Coordination with Local Municipalities*

- a) The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or other State agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.
- b) The Department shall include a **MUNICIPAL COORDINATION PLAN** in the SWMP. The plan shall describe the specific steps that the Department will take in establishing communication, coordination, cooperation, and collaboration with other MS4 storm water management agencies and their programs including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. The Department shall report on the status and progress of interagency coordination activities in each Annual Report.

2) *Legal Authority*

- a) The Department shall establish, maintain, and certify that it has adequate legal authority through statute, permit, contract or other means to control discharges to and from the Department's properties, facilities and activities.
- b) The Department has provided a statement certified by its chief legal counsel that the Department has adequate legal authority to implement and enforce

each of the key regulatory requirements contained in 40 Code of Federal Regulations sections 122.26(d)(2)(i)(A-F). The Department shall submit annually, as part of the Annual Report, a **CERTIFICATION OF THE ADEQUACY OF LEGAL AUTHORITY**.

3) *Fiscal Resources*

- a) The Department shall seek to maintain adequate fiscal resources to comply with this NPDES Permit. This includes but is not limited to:
 - i) Implementing and maintaining all BMPs;
 - ii) Implementing an effective storm water monitoring program; and
 - iii) Retaining qualified personnel to manage the storm water program.
- b) The Department shall submit a **FISCAL ANALYSIS** of the storm water program annually. At a minimum, the fiscal analysis shall show:
 - i) The allocation of funds to the Districts for compliance with this Order;
 - ii) The funding for each program element;
 - iii) A comparison of actual past year expenditures with the current year's expenditures and next year's proposed expenditures;
 - iv) How the funding has met the goals specified in the SWMP and District workplans; and
 - v) Description of any cost sharing agreements with other responsible parties in implementing the storm water management program.
- c) The fourth year report shall contain a **BUDGET ANALYSIS** for the next permit cycle.

4) *Practices and Policies*

The Department shall identify in the SWMP any of the Department's practices and policies that conflict with implementation of the storm water program. The Department shall annually propose changes, including changes to implementation schedules, needed to resolve these conflicts and otherwise effectively implement the SWMP and the requirements of this Order.

5) *Inspection Program*

The Department shall have an inspection program to ensure that this Order and the SWMP are implemented, and that facilities are constructed, operated, and maintained in accordance with this Order and the SWMP. The program shall include training for inspection personnel, documentation of field activities, a reporting system that can be used to track effectiveness of control measures, enforcement procedures (or referral for enforcement) for non-compliance, procedures for taking corrective action, and responsibilities and responsible personnel of all affected functional offices and branches.

The inspection program shall also include standard operating procedures for documenting inspection findings, a system of escalating enforcement response to non-compliance (including procedures for addressing third party (i.e., contractor) non-compliance), and a system to ensure the timely resolution of all violations of this Order or the SWMP. The Department shall delegate adequate authority to appropriate personnel within all affected functional offices and branches to require corrective actions (including stop work orders).

6) *Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance*

The Department shall report all known incidents of non-compliance with this Order. Non-compliance may be emergency, field, or administrative. The Department shall electronically file a complete **INCIDENT REPORT FORM** (Attachment I) in the Storm Water Multiple Application Report and Tracking System (SMARTS)⁶ and provide verbal notifications as soon as practicable, but no later than the time frames specified in Attachment I. Submission of an Incident Report Form is not an admission by the Department of a violation of this Order. The types of incidents requiring non-compliance reporting are discussed in Attachment I. The State Water Board or Regional Water Board may require additional information. The Department shall include in the Annual Report a summary of all incidents by type and District, and report on the status of each.

The Department shall report all potential or threatened non-compliance to the State Water Board and appropriate Regional Water Board in accordance with the “Anticipated non-compliance” provisions described in Attachment VI (Standard Provisions). The report shall describe the timing, nature and extent of the anticipated non-compliance. An Incident Report Form is not required for anticipated non-compliance. Anticipated non-compliance may be for field or administrative incidents only.

c. Monitoring and Discharge Characterization Requirements

The Department shall revise and implement the SWMP consistent with the requirements specified below.

1) *Monitoring Site Selection*

Monitoring shall be conducted in two tiers. Tier 1 consists of all sites for which monitoring is required pursuant to the requirements of the General Exception, including Special Protections, to the California Ocean Plan waste discharge prohibitions for storm water and non-point source discharges to ASBS, and sites in impaired watersheds for which the Department has been assigned a WLA and monitoring requirements pursuant to an approved TMDL. Tier 2 consists of all sites where the Department has existing monitoring data, including both storm water and non-storm water. Tier 2 sites may include locations where the Department has conducted characterization monitoring or where monitoring has been conducted for other purposes.

⁶ <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

The Department shall conduct without limitation all Tier 1 monitoring as required under the ASBS Special Protections and under the adopted and approved TMDLs. The Department may satisfy Tier 1 monitoring requirements by participating in stakeholder groups. Retrofitting and verification monitoring under Tier 2 need not be initiated until there are less than 100 sites actively monitored under Tier 1. There shall be a minimum of 100 active monitoring sites at any one time, consisting of Tier 1, Tiers 1 and 2, or Tier 2.

Sites from Tier 2 shall be prioritized by the Department in consideration of the threat to water quality, including the pollutant and its concentration or load, the distance to receiving water, water quality objectives, and any existing impairments in the receiving waters. The prioritized list shall be submitted to the State Water Board within eight (8) months of the effective date of this Order. The State Water Board will review the prioritized list and may revise it to reflect Regional or State Water Board priorities. The revised list will be approved by the Executive Director and will become effective upon notice to the Department.

2) *Water Quality Monitoring*

a) Tier 1 Monitoring Requirements

i) Areas of Special Biological Significance

The Department's ASBS monitoring program shall include both core discharge monitoring and ocean receiving water and reference site monitoring. The State and Regional Water Boards must approve receiving water and reference site sampling locations and any adjustments to the monitoring program. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions exist.

(1) Core Discharge Monitoring Program

Core discharge monitoring is the monitoring of storm water effluents from the storm water outfalls at the priority discharge locations listed in Attachment III.

(a) General Sampling Requirements for Timing and Storm Size

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for

the same constituents as receiving water and reference site samples (see section E.2.c.2)a)i(2)) as described below.

(b) Runoff Flow Measurements

For storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width, including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State Water Board. Report measurements annually for each precipitation season to the State and Regional Water Boards.

(c) Runoff samples – storm events

- (i) Outfalls equal to or greater than 18 inches (0.46m) in diameter or width.

Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS. If the Department has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B (shown in Attachment II) metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

- (ii) Outfalls equal to or greater than 36 inches (0.91m) in diameter or width.

Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and

phosphates). Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

(d) If the Department does not participate in a regional monitoring program as described in provision E.2.c.2)a)i)(2)(b) in addition to (i) and (ii) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A (shown in Attachment II) constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For discharges to ASBS in more than one Regional Water Board, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

(e) The Executive Director of the State Water Board may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(2) Ocean Receiving Water and Reference Area Monitoring Program
In addition to performing the Core Discharge Monitoring Program in provision E.2.c.2)a)i)(1) above, the Department must perform ocean receiving water monitoring. The Department may either implement an individual monitoring program or participate in a regional integrated monitoring program.

(a) Individual Monitoring Program

If the Department elects to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS, in addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

(i) Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in provision E.2.c.2)a)i)(1)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan

PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm) and during (or immediately after) the same storm (post storm). Post storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

- (ii) Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.
- (iii) A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.
- (iv) Once during each permit term and in each subsequent five year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the

State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

(v) Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

(vi) The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(b) Regional Integrated Monitoring Program

The Department may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within an ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the prescribed individual monitoring approach described in provision E.2.c.2)a)i)(2)(a) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

(i) Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are

303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled by the Department. Because the Department discharges to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

- (ii) ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than 18 inches). Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS by the Department. At a minimum, one reference station and one receiving water station shall be sampled in each applicable Regional Water Board.
- (iii) Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons.

- (iv) Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.
- (v) Determinations of compliance with Special Protections requirements for ASBS discharges (State Water Board resolution DWQ 2012-0012) shall be made by the Executive Director of the State Water Board or his designee. When a determination is made that a site or discharge is in compliance with the Special Protections, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1). This provision applies regardless of any continued monitoring that may be required at the site pursuant to the Special Protections.

ii) Total Maximum Daily Load Watersheds

The Department shall comply with the TMDL monitoring requirements in Attachment IV, or in orders of the Regional Water Boards pursuant to Water Code section 13383 that require TMDL-related monitoring. TMDL monitoring shall also include the constituents listed in Attachment II, except as exempted in Attachment IV.

Determinations of compliance with the TMDL shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance with the TMDL, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1) and monitoring of Attachment II constituents will be discontinued. This provision applies regardless of any continued monitoring that may be required at the site pursuant to the TMDL.

b) Tier 2 Retrofit and Verification Monitoring Requirements

Corrective actions shall be implemented at the top 15 percent of sites (rounded up) on the Tier 2 priority list, subject to the number of sites per year specified in provision E.2.c.1). Follow up monitoring shall be conducted to confirm the effectiveness of the measures implemented, as determined by the Executive Officer of the Regional Water Board or his designee. Follow up monitoring is not required where the discharge has been eliminated, or where

the implemented BMP provides full retention of the 85th percentile, 24-hour rain event.

Determinations of compliance at the Tier 2 sites shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1).

3) *Corrective Actions*

Corrective actions may include structural or non-structural BMPs. All structural BMPs must be designed according to the requirements in provisions E.2.d. and E.2.e.

4) *Field and Laboratory Data Requirements*

The Department shall prepare, maintain, and implement a Quality Assurance Project Plan (QAPP) in accordance with the Surface Water Ambient Monitoring Program. All monitoring samples shall be collected and analyzed according to the Department's QAPP developed for the purpose of compliance with this Order. SWAMP Quality Assurance Program Plan (2008) is available at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml

All samples shall be analyzed by a certified or accredited laboratory as required by Water Code section 13176. Global Positioning System (GPS) coordinates shall be recorded for all monitoring sites, including sites selected for the final Tier 2 priority list (top 15%) according to existing data.

Water quality data (receiving water and effluent) shall be uploaded to the Storm Water Multi-Application Reporting and Tracking System (SMARTS) and must conform to "CEDEN Minimum Data Templates" format. CEDEN Minimum Data Templates are available at <http://ceden.org/>.

Analytical results shall be filed electronically in SMARTS within 30 days of receipt by the Department.

5) *Monitoring Results Report*

The Department shall submit, separate from the Annual Report, a **MONITORING RESULTS REPORT (MRR)** by October 1 of each year.

- a) The MRR shall include a list of all sites in Tier 1 and Tier 2 being actively monitored, and the results of the past fiscal year's monitoring activities including effluent and receiving water quality monitoring.
- b) The Department shall specifically highlight sample values that exceed applicable WQSs, including toxicity objectives. Complete sample results or

lab data need not be included, but must be retained and filed electronically, and must be provided to the Regional Water Board or State Water Board as provided in provision E.2.c.4).

- c) The MRR shall include a summary of sites requiring corrective actions needed to achieve compliance with this Order, and a review of any iterative procedures (where applicable) at sites needing corrective actions.
- d) The reporting period for the MRR shall be July 1 of the prior year through June 30 of the current year.

6) *Compliance Monitoring and Reporting*

- a) The Department shall review and propose any updates, as needed, to the Non-compliance Reporting Plan for Municipal and Construction Activities in section 9.4.1 of the SWMP. The plan shall identify the staff in each District Office and Regional Water Board to send and receive **INCIDENT REPORT FORMS** (Attachment I). The Department shall continue to implement the July 2008 Construction Compliance Evaluation Plan or any updated plan as approved by the Executive Director.
- b) The Department shall summarize, by District, all non-compliance incidents, including construction, in the Annual Report. The summary shall include incident dates, types, locations, and the status of the non-compliance incidents.
- c) Receiving Water Limitations Compliance.
 - i) Upon a determination by the Department or the Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS, the Department shall provide verbal notification within five (5) days, and within 30 days thereafter submit a report to the appropriate Regional Water Board with a copy to the State Water Board. Verbal notification is not required where the determination is made by the Regional Water Board. An Incident Report is not required. Where the pollutant causing the exceedance is subject to a waste load allocation listed in Attachment IV of this Order, the Department shall comply with the requirements of the relevant TMDL in lieu of this provision.
 - ii) The report shall describe BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance. The report shall include an implementation schedule. The Regional Water Board Executive Officer may require modifications to the report.
 - iii) The Department shall submit any modifications to the report required by the Regional Water Board within 30 days of notification.
 - iv) The Department shall implement the revised BMPs and conduct any additional monitoring required according to the implementation schedule.

- d) Toxicity
 - i) Tests for chronic toxicity, where required, shall be estimated as specified in Short-term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002; Table IA, 40 Code of Federal Regulations section 136 and its subsequent amendments or revisions.
 - ii) For the Department's discharges, the In-stream Waste Concentration (IWC) is 100 percent (i.e., either is 100 percent storm water or 100% non-storm water). To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used. A Pass result indicates no toxicity at the IWC, and a Fail result indicates toxicity at the IWC. Results shall be reported as provided in provision E.2.c.5).

- e) Toxicity Reduction Evaluations (TREs)
 - i) The Department shall include in the SWMP a TRE workplan (1-2 pages) specifying the steps that will be taken in preparing a TRE, when a TRE is required pursuant to provision E.2.c.6)e)ii). The workplan shall include, at a minimum:
 - (a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and BMP efficiencies.
 - (b) A description of the steps that will be taken to identify effective pollutant/toxicity reduction opportunities.
 - (c) If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who would conduct the TIEs (i.e., a Department laboratory or outside contractor).
 - ii) Upon a determination that a discharge is causing or contributing to an exceedance of an applicable toxicity standard, a TRE may be required by the appropriate Regional Water Board Executive Officer on a site specific basis. The TRE shall be conducted according to the workplan in the SWMP.

d. Project Planning and Design

The Department shall describe in the SWMP how storm water management is incorporated into the project planning and design process, and how the procedures and methodologies used in the selection of Design and Construction BMPs will be used in Department projects. The Department shall implement the program specified in the SWMP, any documents incorporated into the SWMP by reference, and any additional requirements contained in this Order.

Department and Non-Department projects within the Department's ROW that are new development or redevelopment shall comply with the standard project planning and design requirements for new development and redevelopment specified below. These requirements shall apply to all new and redevelopment projects that have not completed the project initiation phase on the effective date of this Order.

1) *Design Pollution Prevention Best Management Practices*

The following design pollution prevention best management practices shall be incorporated into all projects that create disturbed soil area (DSA), including projects designed to meet the post-construction treatment requirements (Section E.2.d.2)). The SWMP shall be updated to reflect these principles.

- a) Conserve natural areas, to the extent feasible, including existing trees, stream buffer areas, vegetation and soils;
- b) Minimize the impervious footprint of the project;
- c) Minimize disturbances to natural drainages;
- d) Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope and other pertinent factors;
- e) Implement landscape and soil-based BMPs such as compost-amended soils and vegetated strips and swales;
- f) Use climate-appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and
- g) Design all landscapes to comply with the California Department of Water Resources Water Efficient Landscape Ordinance.

<http://www.water.ca.gov/wateruseefficiency/landscapeordinance/technical.cfm>

Where the California Department of Water Resources Water Efficient Landscape Ordinance conflicts with a local water conservation ordinance, the Department shall comply with the local ordinance.

2) *Post-Construction Storm Water Treatment Controls*

a) Projects Subject to Post-Construction Treatment Requirements

i) Department Projects

The Department shall implement post construction treatment control BMPs for the following new development or redevelopment projects:

- (1) Highway Facility projects that create 1 acre or more of new impervious surface.
- (2) Non-Highway Facility projects that create 5,000 square feet or more of new impervious surface.

ii) Non-Department Projects within Department ROW

- (1) The Department shall exercise control or oversight over Non-Department projects through encroachment permits or other means.
- (2) Non-Department development or redevelopment projects shall be subject to the same post-construction treatment control requirements as Department projects.
- (3) For all Non-Department Projects that trigger post-construction treatment control requirements, the Department shall review and approve the design of post-construction treatment controls and BMPs prior to implementation.

iii) Waiver

Where a Regional Water Board Executive Officer finds that a project will have a minimal impact on water quality, the Executive Officer may waive the treatment control requirements, or lessen the stringency of the requirements, for a project. Waivers may not be granted for projects subject to treatment control requirements based on a waste load allocation assigned to the Department.

b) Numeric Sizing Criteria for Storm Water Treatment Control BMPs:

Treatment control BMPs constructed for Department and Non-Department projects shall be designed according to the following priorities (in order of preference):

- i) Infiltrate, harvest and re-use, and/or evapotranspire the storm water runoff;
- ii) Capture and treat the storm water runoff.

The storm water runoff volumes and rates used to size BMPs shall be based on the 85th percentile 24-hour storm event. This sizing criterion shall apply to the entire treatment train within Project Limits. Design Pollution Prevention BMPs can be used to comply with this requirement.

In the event the entire runoff volume from an 85th percentile 24-hour storm event cannot be infiltrated, harvested and re-used, or evapotranspired, the excess volume may be treated by Low Impact Development (LID)-based flow-through treatment devices. Where LID-based flow-through treatment devices are not feasible, the excess volume may be treated through conventional volume-based or flow-based storm water treatment devices.

The Department shall always prioritize the use of landscape and soil-based BMPs to treat storm water runoff. Other BMPs may be used only after landscape and soil-based BMPs are determined to be infeasible. The

Department shall also consider other effective storm water treatment control methods or devices for Department approval.

c) Scope of Design Criteria Applicability for Redevelopment Projects

i) For Highway Facilities:

- (1) Where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either: provide treatment for redeveloped areas and as much of the hydraulically inseparable flow as feasible, based on site conditions and constraints; or identify treatment opportunities equivalent to the redeveloped area (see Alternative Compliance, below).

If it is not possible to separate the flows from redeveloped areas from the existing impervious area, the treatment system shall be designed to treat as much of the hydraulically inseparable flow as feasible, and shall bypass or divert any excess around the treatment device. The purpose of this requirement is to prevent overloading the treatment device and impairing its performance.

- (2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria apply to the entire project.

ii) For Non-Highway Facilities, where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

- (1) If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either provide treatment for existing and redeveloped areas, or identify treatment opportunities equivalent to the redeveloped area (See Alternative Compliance, below).

- (2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria apply to the entire project.

d) Alternative Compliance

If the Department determines that all or any portion of on-site treatment for a project is infeasible on-site, the Department shall prepare a proposal for alternative compliance for approval by the Regional Water Board Executive Officer or his designee until such time as a statewide process is approved by the Executive Director of the State Water Board. The proposal shall include documentation supporting the determination of infeasibility. Alternative compliance may be achieved outside Project Limits within the Department's ROW, including within another Department project. Alternative compliance to be achieved outside Project Limits shall include provisions for the long-term maintenance of such treatment facilities.

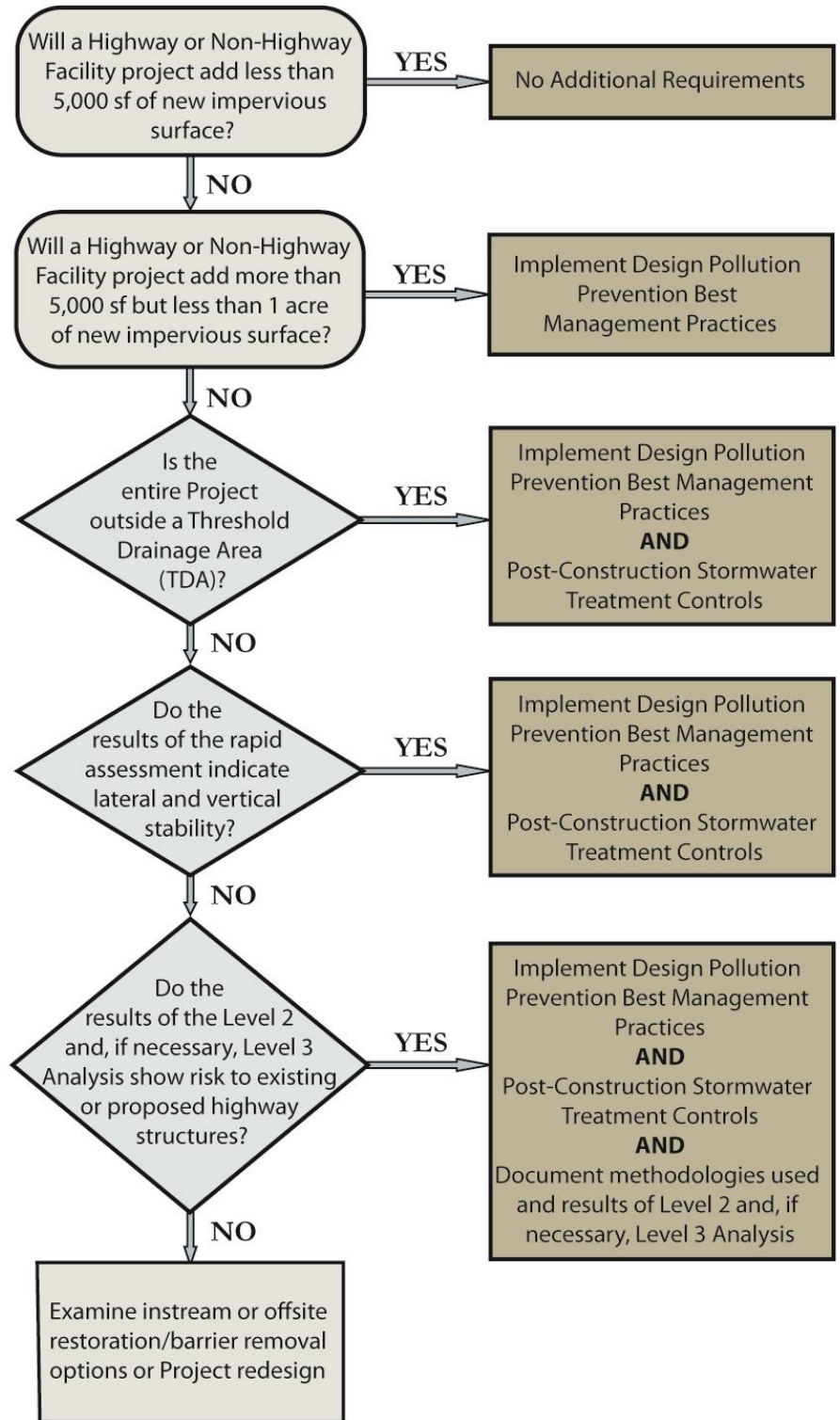
3) *Hydromodification Requirements*

The Department shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving stream channels. Unstable stream channels negatively impact water quality by yielding much greater quantities of sediment than stable channels. The Department shall employ the risk-based approach detailed in this permit to assess lateral and vertical stability. The approach assists the Department in assessing pre-project channel stability and implementing mitigation measures that are appropriate to protect structures and minimize stream channel bank and bed erosion. The approach is depicted in Figure 1 and described below.

- a) Highway or Non-Highway Facility projects that add between 5,000 square feet and 1 acre of new impervious surface must implement the Design Pollution Prevention Best Management Practices in Section E.2.d.1).
- b) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface completely outside of a Threshold Drainage Area⁷ must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.

⁷ Threshold Drainage Area is defined as the area draining to a location at least 20 channel widths downstream of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits. Delineating the Threshold Drainage Area is not necessary if there is/ are no stream crossing(s) within the Project Limits.

FIGURE 1: Hydromodification Flowchart



- c) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface with any impervious portion of the project located within a Threshold Drainage Area must conduct a rapid assessment of stream stability⁸ at each stream crossing (e.g., pipe, culvert, swale or bridge) within that Threshold Drainage Area. If the stream crossing is a bridge, a follow up rapid assessment of stream stability is also required and can be coordinated with the federally-mandated bridge inspection process. The assessment will be conducted within a representative channel reach to assess lateral and vertical stability. A representative reach is a length of stream channel that extends at least 20 channel widths upstream and downstream of a stream crossing. For example, a 20 foot-wide channel would require analyzing a 400 foot distance upstream and downstream of the discharge point or bridge. If sections of the channel within the 20 channel width distance are immediately upstream or downstream of steps, culverts, grade controls, tributary junctions, or other features and structures that significantly affect the shape and behavior of the channel, more than 20 channel widths should be analyzed.
- d) If the results of the rapid assessment indicate that the representative reach is laterally and vertically stable (i.e., a rating of excellent or good) the Department does not have to conduct further analyses and must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.
- e) If the results of the rapid assessment indicate that the representative reach will not be laterally and vertically stable (i.e., a rating of excellent or good), the Department must determine whether the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures by conducting appropriate Level 2 (and, if necessary, Level 3) analyses. The Department shall follow the Level 2 and 3 analysis guidelines contained in HEC-20 (FHWA, 2001) or a suitable equivalent within an accessible portion of the reach. If the results of the appropriate Level 2 (and, if necessary Level 3) analyses indicate that there is no risk to existing or proposed highway structures, the Department must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d. and document the methodologies used, the results, and the mitigation measures suggested as part of the appropriate Level 2 and, if necessary, Level 3 analyses.
- f) If the results of the Level 2 and 3 analysis indicate that the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures, other options must be implemented, including, but not limited to, in-stream and floodplain enhancement/restoration, fish barrier

⁸ Guidance and worksheets used for the rapid assessment of stream stability are in the Federal Highway Administration publication "*Assessing Stream Channel Stability at Bridges in Physiographic Regions*" (FHWA, 2006).

removal as identified in the report required under Article 3.5 of the Streets and Highways Code (see below), regional flow control, off-site BMPs, and, if necessary, project re-design.

- 4) *Stream Crossing Design Guidelines to Maintain Natural Stream Processes*
The Department shall review and revise as necessary the guidance document “Fish Passage Design for Road Crossings” (Department, 2009). In reviewing and revising the guidance document, the Department shall be consistent with the latest stream crossing design, construction, and rehabilitation criteria contained in the California Salmonid Stream Habitat Restoration Manual (California Department of Fish & Game, 2010) and National Marine Fisheries Service guidance (NMFS, 2001). The review shall be completed no later than one year after the effective date of this Order. The Department shall submit in the Year 2 Annual Report a report detailing the review of the guidance document. The Year 2 Annual Report shall also report on the implementation of the road crossing guidelines.

If it is infeasible to meet any of the guidelines specified above, the Department shall prepare written documentation justifying the determination of infeasibility. Documentation shall be provided to the Regional Water Board for approval.

The Department shall submit to the State Water Board by October 1 of each year the same report required under Article 3.5 of the Streets and Highways Code requiring the Department to report on the status of its efforts in locating, assessing, and remediating barriers to fish passage.

e. BMP Development & Implementation

In the SWMP, the Department shall include a description of how BMPs will be developed, constructed and maintained. The Department shall continue to evaluate and investigate new BMPs through pilot studies. The Department shall submit updates to the **STORM WATER TREATMENT BMP TECHNOLOGY REPORT** and the **STORM WATER MONITORING AND BMP DEVELOPMENT STATUS REPORT** in the Annual Report.

1) *Vector Control*

- a) All storm water BMPs that retain storm water shall be designed, operated and maintained to minimize mosquito production, and to drain within 96 hours of the end of a rain event, unless designed to control vectors. BMPs shall be maintained at the frequency specified by the manufacturer. This limitation does not apply in the Lake Tahoe Basin and in other high-elevation regions of the Sierra Nevada above 5000 feet elevation with similar alpine climates. The Department shall operate and maintain all BMPs to prevent the propagation of vectors, including complying with applicable provisions of the California Health and Safety Code relating to vector control.

- b) The Department shall cooperate and coordinate with the California Department of Public Health (CDPH) and with local mosquito and vector control agencies on issues related to vector production in the Department's structural BMPs. The Department shall prepare and maintain an inventory of structural BMPs that retain water for more than 96 hours. The inventory need not include BMPs in the Lake Tahoe Basin or other regions of the Sierra Nevada above 5000 feet. The inventory shall be provided to CDPH in electronic format for distribution to local mosquito and vector control agencies. The inventory shall be provided in Year 2 of the permit and updated every two years.

2) *Storm Water Treatment BMPs*

- a) The Department shall inspect all newly installed storm water treatment BMPs within 45 days of installation to ensure they have been installed and constructed in accordance with approved plans. If approved plans have not been followed, the Department shall take appropriate remedial actions to bring the BMP or control into conformance with its approved design.
- b) The Department shall inspect all installed storm water treatment BMPs at least once every year, beginning one year after the effective date of this Order.
- c) The Department may drain storm water treatment BMPs to the MS4 if the discharge does not cause or contribute to exceedances of water quality standards. Retained sediments shall be disposed of properly, in compliance with all applicable local, State, and federal acts, laws, regulations, ordinances, and statutes.
- d) The Department shall develop and utilize a watershed-based database to track and inventory treatment BMPs and treatment BMP maintenance within its jurisdiction. At a minimum, the database shall include:
 - i) Name and location of BMP;
 - ii) Watershed, Regional Water Board and District where project is located;
 - iii) Size and capacity;
 - iv) Treatment BMP type and description;
 - v) Date of installation;
 - vi) Maintenance certifications or verifications;
 - vii) Inspection dates and findings;
 - viii) Compliance status;
 - ix) Corrective actions, if any; and
 - x) Follow-up inspections to ensure compliance.

Electronic reports for each BMP inspected during the reporting period shall be submitted to each associated Regional Water Board in tabular form. A summary of the tracking system data shall be included in the Annual Report along with a report on maintenance activities for post construction BMPs.

The tracking system database shall be made available to the State Water Board or any Regional Water Board upon request.

3) BMPs shall not constitute a hazard to wildlife.

4) *Biodegradable Materials.*

The Department shall utilize wildlife-friendly 100% biodegradable⁹ erosion control products wherever feasible. At any site where erosion control products containing non-biodegradable materials have been used for temporary site stabilization, the Department shall remove such materials when they are no longer needed. If the Department finds that erosion control netting or products have entrapped or harmed wildlife at any site or facility, the Department shall remove the netting or product and replace it with wildlife-friendly biodegradable products.

f. Construction

1) *Compliance with the Statewide Construction Storm Water General Permit (CGP) and Lake Tahoe Construction General Permit (TCGP)*

Construction activities that may receive coverage under the CGP or the TCGP are not covered under this MS4 Permit. The Department shall electronically file Permit Registration Documents (PRD) for coverage under the CGP or TCGP for all projects subject to the CGP or TCGP.

2) *Construction Activities not Requiring Coverage Under the CGP*

For construction activities that are not subject to the CGP or the TCGP, the Department shall implement BMPs to reduce the discharge of pollutants to the MEP in storm water discharges associated with land disturbance activities including clearing, grading and excavation activities that result in the disturbance of less than one acre of total land area. The Department shall also implement BMPs to reduce the discharge of pollutants to the MEP for construction and maintenance activities that do not involve land disturbance such as roadway and parking lot repaving and resurfacing. The Department must comply with any region-specific waste discharge requirements, including any requirements applicable to activities involving less than one acre land disturbance.

3) *Construction Projects Involving Lead Contaminated Soils*

The Department has applied for and received variances from the California Department of Toxic Substances Control (DTSC) for the reuse of some soils that contain lead. For construction projects that have received a DTSC variance, the Department shall notify the appropriate Regional Water Board in writing 30 days prior to advertisement for bids to allow a determination by the Regional Water Board of the need for development of Waste Discharge Requirements (WDRs).

⁹ For purposes of this Order, photodegradable synthetic products are not considered biodegradable.

- 4) *Pavement Grindings*
The Department shall comply with the requirements of the Regional Water Boards for the management of pavement grindings as well as with all local and State regulations, including Titles 22 and 27 of the California Code of Regulations.
 - 5) *Contractor Compliance*
The Department shall require its contractors to comply with this Order and with all applicable requirements of the CGP.
 - 6) *Construction Non-Compliance Reporting*
Incidents of non-compliance with the CGP shall be reported pursuant to the provisions of the CGP. The Department shall provide in the Annual Report a summary of all construction project non-compliance (Section E.2.c.6)b)).
- g. Compliance with Statewide Industrial Storm Water General Permit (IGP)
Industrial activities are not covered under this MS4 permit. The Department shall electronically file PRDs for coverage under the IGP for all facilities subject to coverage under the IGP. The categories of industrial facilities are provided in Attachment 1 of the Industrial General Permit (NPDES Permit No. CAS000001; the current Order No. 97-03-DWQ). The Department shall require its industrial facility contractors to comply with all requirements of the IGP. The discharge of pollutants from facilities not covered by the Industrial General Permit will be reduced to the MEP through the appropriate implementation of BMPs.
- h. Maintenance Program Activities and Facilities Operations
- 1) *Implement SWMP Requirements*
The Department shall implement the program specified in the SWMP to reduce or eliminate pollutants in storm water discharges from Department maintenance facilities and maintenance activities. The Department shall also implement any additional requirements contained in this Order.
 - 2) A **FACILITY POLLUTION PREVENTION PLAN (FPPP)** describes the activities conducted at a facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility.

The Department shall prepare, revise and/or update the FPPPs for all maintenance facilities by October 1 of the first year. Each facility shall be evaluated separately and assigned appropriate site specific BMPs. The FPPP shall describe the activities conducted at the facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility. The FPPP shall describe the inspection program used to ensure that maintenance BMPs are implemented and maintained. The Department shall identify in each Annual Report the status of the FPPP for each

Maintenance Facility by District and Region, including the date of the last update or revision and the nature of any revisions.

The Department shall evaluate all non-maintenance Facilities, excluding leased properties, for water quality problems. If the Department identifies a water quality problem at a non-maintenance facility, it shall prepare an FPPP for that facility. If Regional Water Board staff determines that a non-maintenance facility may discharge pollutants to the storm water drainage system or directly to surface waters, the Department shall prepare an FPPP for that facility.

Regional Water Board staff has the authority to require the submittal of an FPPP at any time, to require changes to a FPPP, and to require changes in the implementation of the provisions of a FPPP.

3) *Highway Maintenance Activities*

a) The Department shall develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters. The Department shall:

- i) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures). Priority shall be given to sites in sensitive watersheds or where there is an existing or potential threat to water quality;
- ii) Establish schedules for implementing appropriate controls; and
- iii) Identify road segments with slopes that are prone to erosion and sediment discharge and stabilize these slopes to control the discharge of pollutants to the MEP. An inventory of vulnerable road segments shall be maintained in the District Work Plans. Stabilization activities shall be reported in the Annual Report. This section does not apply to landslides and other forms of mass wasting which are covered under section E.2.h.3)d).

b) *Vegetation Control*

The Department shall control its handling and application of chemicals including pesticides, herbicides, and fertilizers to reduce or eliminate the discharge of pollutants to the MEP. The Department shall incorporate integrated pest management and integrated vegetation management practices into its vegetation control program¹⁰. At a minimum, the Department shall:

- i) Apply herbicides and pesticides in compliance with federal, state and local use regulations and product label directions.

¹⁰ <http://www.epa.gov/opp00001/factsheets/ipm.htm> and <http://www.ipm.ucdavis.edu/>

- (1) Violations of regulations shall be reported to the County Agricultural Commissioners within 10 business days.
 - (2) The Annual Report shall include a summary of violations and follow-up actions to correct them.
- ii) Minimize the application of chemicals by using integrated pest management and integrated vegetation management. For example, the Department may reduce the need for application of fertilizers and herbicides by using native species and using mechanical and biological methods for control of exotic species.
 - iii) Prior to chemical applications, assess site-specific and application-specific conditions to prevent discharge. The assessment shall include the following variables:
 - (1) Expected precipitation events, especially those with the potential for high intensity;
 - (2) Proximity to water bodies;
 - (3) Intrinsic mobility of the chemical;
 - (4) Application method, including any tendency for aerial dispersion;
 - (5) Fate and transport of the chemical after application;
 - (6) Effects of using combinations of chemicals; and
 - (7) Other conditions as identified by the applicator.
 - iv) Apply nutrients at rates and by means necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.
 - v) Ensure that all employees or contractors who, within the scope of their duties, prescribe or apply herbicides, pesticides, or fertilizers (including over-the-counter products) are appropriately trained and licensed to comply with these provisions.
 - vi) Propose SWMP provisions as appropriate.
 - vii) Include the following items in the Annual Report:
 - (1) A summary of the Department's chemical use. Report the quantity of chemicals used during the previous reporting period by name and type of chemical, by District, and by month.
 - (2) An assessment of long-term trends in herbicide usage. Include a table presenting yearly District herbicide totals by chemical type;
 - (3) A comparison of the statewide herbicide use with the Department's herbicide reduction goals;

- (4) An analysis of the effectiveness of implementation of vegetation control BMPs. Improvements to BMP implementation either being used or proposed for usage shall be discussed. If no improvements are proposed, explain why;
- (5) Justification for any increases in use of herbicides, pesticides, and fertilizers;
- (6) A report on the number and percentage of employees who apply pesticides and have been trained and licensed in the Department's Pesticide and Fertilizer Pollution Control Program policies; and
- (7) Training materials, if requested by the State Water Board.

c) Storm Water Drainage System Facilities Maintenance

- i) The Department shall inspect all urban¹¹ drainage inlets and catch basins a minimum of once per year and shall remove all waste and debris from drainage inlets and catch basins when waste and debris have accumulated to a depth of 50 percent of the inlet or catch basin capacity.
- ii) Waste and debris, including sweeper and vacuum truck waste, shall be managed and reported in accordance with all applicable laws and regulations, including the Cal. Code Regs. Title 27, Division 2, Subdivision 1.
- iii) The Department shall develop a **WASTE MANAGEMENT PLAN** that includes a comprehensive inventory of waste storage, transfer, and disposal sites; the source(s) of waste and the physical and chemical characterization of the waste retained at each site; estimated annual volumes of material and existing or planned waste management practices for each waste and facility type. Waste characterization need not be conducted on a site-by-site basis but may be evaluated programmatically based upon the highway environment and associated land uses contributing to the sites, climate, and ecoregion. The Waste Management Plan shall be submitted for State Water Board review and approval within one year of the effective date of this Order.

d) Landslide Management Activities

The Department shall develop a **LANDSLIDE MANAGEMENT PLAN** that includes BMPs for Department construction and maintenance work landslide-related activities (e.g., prevention, containment, clean-up). The *Landslide Management Plan* shall address all forms of mass wasting such as slumps, mud flows, and rockfalls, and shall include BMPs specifically for burn site management activities. The Department shall submit the *Landslide Management Plan* with the Year 1 Annual Report and implement the *Landslide Management Plan* for the remainder of the Permit term.

¹¹ For purposes of this requirement, the term "urban" shall mean located within an "urbanized area" as determined by the latest Decennial Census by the Bureau of the Census (Urbanized Area).

4) *Surveillance Activities*

a) Spill Response

The Department will follow the applicable Emergency Management Agency (EMA) procedures and timelines specified in Water Code sections 13271 and 13272 for reporting spills.

b) Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response

i) The Department shall implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs and illegal dumping.

ii) The Department shall develop an **IC/ID AND ILLEGAL DUMPING RESPONSE PLAN** that includes, at a minimum, the following:

- (a) Procedures for investigating reports or discoveries of IC/IDs or incidents of illegal dumping, for remediating or eliminating the IC/IDs, and for clean-up of illegal dump sites.
- (b) Procedures for prevention of illegal dumping at sites subject to repeat or chronic incidents of illegal dumping.
- (c) Procedures for educating the public, raising awareness and changing behaviors regarding illegal dumping, and encouraging the public to contact the appropriate local authorities if they witness illegal dumping.

Within 6 months of the effective date of this Order, the Department shall submit the **IC/ID AND ILLEGAL DUMPING RESPONSE PLAN** to the State Water Board Executive Director for approval.

iii) The Department shall report all suspected IC/IDs to the Regional Water Board.

c) Reporting Requirements for Trash and Litter

The Department shall report on the trash and litter removal activities that are currently underway or are initiated after adoption of this Order. Activities include, but are not limited to, storm drain maintenance, road sweeping, public education and the Adopt-A-Highway program. Reporting and assessment of these or future activities shall follow protocols established by the Department and shall include estimated annual volumes of the trash and litter removed. Results shall be submitted as part of the Annual Report in a summary format by District. Prior year's data shall be included to facilitate an analysis of trends.

d) Department Activities Outside the Department's Right-of-Way

The Department shall include provisions in its contracts that require the contractor to obtain and comply with applicable permits for project-related facilities and operations outside the Department's ROW. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry

processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads.

5) *Maintenance Facility Compliance Inspections*

- a) District staff shall inspect all maintenance facilities at least twice annually. Follow up inspections shall be conducted when deficiencies are noted. The inspections are to identify areas contributing to a discharge of pollutants associated with maintenance facility activities, to determine if control practices to reduce pollutant loadings identified in the Facility Pollution Prevention Plans (FPPP) are adequate and properly implemented, and to determine whether additional control practices are needed. The District shall keep a record of inspections. The record of the inspections shall include the date of the inspection, the individual(s) who performed the inspection, a report of the observations, recommendations for any corrective actions identified or needed, and a description of any corrective actions undertaken.
- b) The Regional Water Board may require the Department to conduct additional site inspections, to submit reports and certifications, or to perform additional sampling and analysis to the extent authorized by the Water Code.
- c) Records of all inspections, compliance certifications, and non-compliance reporting shall be retained for a period of at least three years. With the exception of non-compliance reporting, the Department is not required to submit these records unless requested.

6) *Operation and Maintenance of Post-Construction BMPs*

The Department shall prepare and implement long-term operation and maintenance plans for every site subject to the post-construction storm water treatment design standards. The plans must ensure the following: a) Long-term structural LID BMPs are maintained as necessary to ensure they continue to work effectively; b) Proprietary devices are maintained according to the manufacturer's directions; and c) Post-construction BMPs are replaced if they lose their effectiveness.

i. Non-Departmental Activities

The Department shall summarize its control over all non-departmental (third party) activities performed on Department ROW in the SWMP. The summary shall describe how the Department shall ensure compliance with this Order in all non-departmental activities.

The Department shall not grant or renew encroachment permits or easements benefitting any third party required to obtain coverage under the Statewide Construction and/or Industrial Storm Water General Permits unless the party has obtained coverage. In all leases, rental agreements, and all other contracts with

third parties conducting activities within the ROW, the Department shall require the third party to comply with applicable requirements of the Construction General Permit, the Industrial General Permit, and this Order.

j. Non-Storm Water Activities/ Discharges

- 1) The Department shall describe the management activities for all non-storm water discharges in the SWMP. Management activities shall include the procedures for prohibiting illicit discharges and illegal connections, and procedures for spill response, cleanup, reporting, and follow-up.
- 2) *Agricultural Return Flows*
The Department shall provide reasonable support to the monitoring activities of agricultural dischargers whose runoff enters the MS4. Reasonable support includes facilitating monitoring activities, providing necessary access to monitoring sites, and cooperating with monitoring efforts as needed. It does not include actively conducting monitoring or providing funding. The Department may require agricultural dischargers to follow established Department access and encroachment procedures in establishing sites and conducting monitoring activities, and may deny access at sites that may restrict traffic flow or pose a danger to any party.
- 3) See Section B of this Order for the complete list of conditionally exempt non-storm water discharges and compliance requirements.

k. Training

- 1) The Department shall implement a training program for Department employees and construction contractors. The training program shall be described in the SWMP.
- 2) The training program shall cover:
 - a) Causes and effects of storm water pollution;
 - b) Regulatory requirements;
 - c) Best Management Practices;
 - d) Penalties for non-compliance with this Order; and
 - e) Lessons learned.
- 3) The Department shall provide a review and assessment of all training activities in the Annual Report.

I. Public Education and Outreach

The Department shall implement a Statewide Public Education Program and describe it in the SWMP. The Department shall continue to seek opportunities to participate in public outreach and education activities with other MS4 permittees.

- 1) The Statewide Public Education Program shall include the following elements:
 - a) Research: A plan for conducting research on public behavior that affects the quality of the Department's runoff. The information gathered will form the foundation for all the public education conducted.
 - b) Education: Education of the general public to modify behavior and communicate with commercial and industrial entities whose actions may add pollutants to the Department's storm water.
 - c) Mass Media Advertising: Continue the advertising campaign as a focal point of the public education strategy. The campaign should focus on the behaviors of concern and should be designed to motivate the public to change those behaviors. The public education campaign should be revised and updated according to the results of the research. The Department may cooperate with other organizations to implement the public education campaign.
- 2) A **PUBLIC EDUCATION PROGRAM PROGRESS REPORT** shall be submitted as part of the Annual Report.

m. Program Evaluation

- 1) The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order.
- 2) **Field Activities SELF-AUDIT**
The Department will perform compliance evaluations for field activities including construction, highway maintenance, facility maintenance, and selected targeted program components. The results of the field compliance evaluations for each fiscal year will be provided in the Annual Report.
- 3) **OVERALL PROGRAM EFFECTIVENESS EVALUATION:**
Each year, the Department shall submit an **OVERALL PROGRAM EFFECTIVENESS EVALUATION** together with the Annual Report. The Department shall increase the scope of the evaluation each year in response to the environmental monitoring data it collects. The effectiveness evaluation shall be comparable to that outlined in CASQA's *Municipal Stormwater Program Effectiveness Assessment Guidance*¹² and shall emphasize assessment of BMPs specifically targeting primary pollutants of concern. The effectiveness evaluation shall include, but is not limited to, the following components:

¹² <https://www.casqa.org/store/products/tabid/154/p-7-effectiveness-assessment-guide.aspx>

- a) Assessment of program effectiveness in achieving permit requirements and measurable objectives.
 - b) Assessment of program effectiveness in protecting and restoring water quality and beneficial uses.
 - c) Identification of quantifiable effectiveness measurements for each BMP, including measurements that link BMP implementation with improvement of water quality and beneficial use conditions.
 - d) Identification of how the Department will propose revisions to the SWMP to optimize BMP effectiveness when effectiveness assessments identify BMPs or programs that are ineffective or need improvement.
- n. Measurable Objectives
The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order. In the SWMP, the Department shall identify measurable objectives to meet the SWMP's goals, proposed activities and tasks to meet the objectives, and a time schedule for the proposed activities and tasks. In the Annual Report, the Department shall report on its progress in meeting the measurable objectives.
- o. References
The Department shall provide references for all information, documents, and studies used in the development of the SWMP.

3. Annual Report

- a. The Department shall submit 13 copies of an **ANNUAL REPORT** to the State Water Board Executive Director by October 1 of each year. An electronic copy shall also be uploaded into SMARTS in the portable document format (PDF). The reporting period for the Annual Report shall be July 1 through June 30. The Annual Report shall contain all information and submittals required by this Order including, but not limited to:
 - 1) A District-by-District description of storm water pollution control activities conducted during the reporting period;
 - 2) A progress report on meeting the SWMP's measurable objectives;
 - 3) An Overall Program Effectiveness Evaluation as described in section E.2.m.3);
 - 4) Proposed revisions to the SWMP, including revisions to existing BMPs, along with corresponding justifications;
 - 5) A report on post-construction BMP maintenance activities;
 - 6) A list of non-approved BMPs that were implemented in each District during the reporting period including the type of BMP, reason for use, physical location, and description of any monitoring;
 - 7) An evaluation of project planning and design activities conducted during the year;

- 8) A summary of non-compliance with this Order and the SWMP as specified in Section E.2.c.6)b). The summary shall include an assessment of the effectiveness of any Department enforcement and penalties, and as appropriate, proposed solutions to improve compliance;
- 9) An evaluation of the Monitoring Results Report, including a summary of the monitoring results;
- 10) Proposed revisions to the Department's Vegetation Control Program;
- 11) Proposals for monitoring and control of non-storm water discharges that are found to be sources of pollutants as described in Section B. of this Order;
- 12) District Workplans (See below); and
- 13) Measures implemented to meet region-specific requirements.

A partial summary of reporting requirements is contained in Attachment IX of this Order.

b. ***DISTRICT WORKPLANS***

The Department shall submit ***DISTRICT WORKPLANS*** (workplans) for each District by October 1 of each year, as part of the Annual Report. The workplans will be forwarded to the appropriate Regional Water Board Executive Officer for acceptance. Workplans are deemed accepted after 60 days after receipt by the Regional Water Board unless rejected in writing. District staff shall meet with Regional Water Board staff on an annual basis prior to submittal of the workplans to discuss alternatives and ensure that appropriate post construction controls are included in the project development process through review of the workplan and early consultation and coordination between District and Regional Water Board staff. Workplans shall conform with the requirements of applicable Regional Water Board Basin Plans and shall include, at a minimum:

- 1) A description of all activities and projects, including maintenance projects, to be undertaken by the Districts. For all projects with soil disturbing activities, this shall include a description of the construction and post construction controls to be implemented;
- 2) The area of new impervious surface and the percentage of new impervious surface to existing impervious surface for each project;
- 3) The area of disturbed soil associated with each project or activity;
- 4) A description of other permits needed from the Regional Water Boards for each project or activity;
- 5) Potential and actual impacts of the discharge(s) from each project or activity;
- 6) The proposed BMPs to be implemented in coordination with other MS4 permittees to comply with WLAs and LAs assigned to the Department for specific pollutants in specific watersheds or sub watersheds;
- 7) The elements of the statewide monitoring program to be implemented in the District;

- 8) Identification of high-risk areas (such as locations where spills or other releases may discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities);
- 9) Spill containment, spill prevention and spill response and control measures for high-risk areas; and
- 10) Proposed measures to be taken to meet Region-specific requirements included in Attachment V.
- 11) An inventory of vulnerable road segments having slopes that are prone to erosion and sediment discharge.

4. TMDL Compliance Requirements

a. Implementation

The Department shall comply with all TMDL-related requirements identified in Attachment IV.

In addition, consistent with provision E.11.b of this Order, the State Water Board may reopen this Order to incorporate any modifications or revisions to the TMDLs in Attachment IV, or to incorporate any new TMDLs adopted during the term of this Order that assign a WLA to the Department or that identify the Department as a responsible party in the TMDL implementation plan.

b. Status Review Report

The Department shall prepare a **TMDL STATUS REVIEW REPORT** to be submitted with each Annual Report. The **TMDL STATUS REVIEW REPORT** shall include all information required in Attachment IV.

5. ASBS Compliance Requirements

a. Priority Discharges

Attachment III, ASBS Priority Discharge Locations, identifies representative monitoring locations where the Department has priority discharges to ASBS. Priority discharges are those that pose the greatest threat to water quality in the ASBS and which the State Water Board identifies to require monitoring and potential installation of structural or non-structural controls.

b. Alternate Locations

The Executive Director of the State Water Board may authorize revisions to Attachment III, ASBS Priority Discharge Locations, where access limitations or safety considerations make it infeasible to conduct monitoring. Alternate locations proposed by the Department shall be in as close proximity to the original priority discharge locations as is feasible.

c. Compliance Schedule

- 1) On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) to ASBS shall be effectively prohibited.
- 2) No later than September 20, 2013, the Department shall submit a draft written ASBS Compliance Plan to the State Water Board Executive Director that describes its strategy to comply with these provisions, including the requirement to maintain natural water quality in the affected ASBS (see provision E.5.d.). The final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, shall be submitted no later than September 20, 2015 and shall be included in the SWMP.
- 3) Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these provisions shall be implemented.
- 4) Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these provisions shall be operational.
- 5) Within six (6) years of the effective date of the Exception, the Department must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Department must re-sample the receiving water, pre- and post-storm. If after re-sampling, the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Figure 2.
- 6) The Executive Director of the State Water Board may only authorize additional time to comply with provisions E.5.b.4) and E.5.b.5) above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If the Department claims physical impossibility, it shall notify the Executive Director of the State Water Board in writing within thirty (30) days of the date that the discharger Department first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in provisions E.5.c.4) or E.5.c.5). The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Permit provision. The Department shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of

the delay on water quality, the measures taken or to be taken by the Department to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Department shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

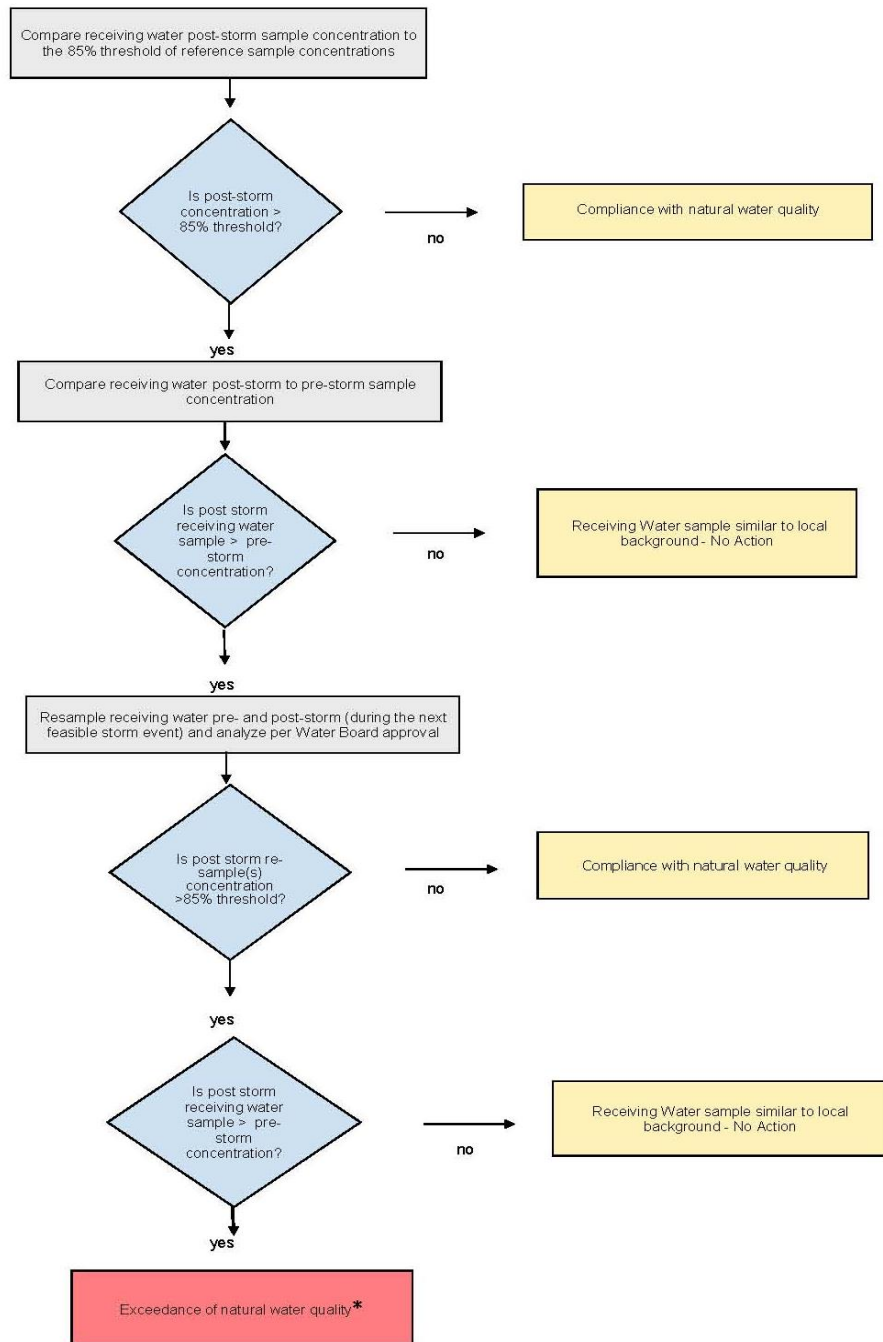
The Department may request an extension of time for compliance based on lack of funding. The request for an extension shall require a demonstration and documentation of a good faith effort to acquire funding through the Department's budgetary process, and a demonstration that funding was unavailable or inadequate.

d. ASBS Compliance Plan

The Department shall develop and submit to the Executive Director of the State Water Board a draft ASBS Compliance Plan not later than September 20, 2013. The ASBS Compliance Plan shall address all locations listed in Attachment III as follows:

- 1) Include a map of surface drainage of storm water runoff, showing areas of sheet runoff, priority discharge locations, and any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable.
- 2) Describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- 3) Require minimum inspection frequencies as follows:
 - a) The minimum inspection frequency for construction sites shall be weekly during the rainy season;
 - b) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season; and
 - c) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season, and maintained to remove trash and other anthropogenic debris.

Figure 2
ASBS Special Protections
Flowchart to Determine Compliance with Natural Water Quality



*** When an exceedance of natural water quality occurs, the Department must comply with section I.A.2.h of the Special Protections as well as the requirements of this Order. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.**

- 4) Address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:
 - a) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
 - b) A 90% reduction in pollutant loading during storm events, for the Department's total discharges.

The baseline for these determinations is the effective date of the Exception, except for those structural BMPs installed between January 1, 2005 and adoption of the Special Protections.

- 5) Address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.
 - 6) Describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures currently employed and planned for higher threat discharges, and shall include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, the Department must first consider, and use where feasible, LID practices to infiltrate, use, or evapotranspire storm water runoff on-site, if LID practices would be the most effective at reducing pollutants from entering the ASBS.
 - 7) The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.
- e. Reporting
- If the results of the receiving water monitoring described in provision E.2.c.2)a)i indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days

of receiving the results.

- 1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.
- 2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP for future implementation, and any additional BMPs that may be added to the SWMP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.
- 3) Within 30 days of the approval of the report by the State Water Board Executive Director, the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.
- 4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

6. Region Specific Requirements

- a. The Department shall implement the region-specific requirements specified in this Order.
- b. In the SWMP, the Department shall describe how individual Districts will address region-specific requirements in each Regional Water Board.
- c. Region specific requirements are specified in Attachment V of this Order.

7. Regional Water Board Authorities

- a. Upon the effective date of this Order, the Regional Water Boards shall enforce the requirements of this Order. Enforcement may include, but is not limited to, reviewing FPPPs, reviewing workplans and monitoring reports, conducting compliance inspections, conducting monitoring, reviewing Annual Reports and other information, and issuing enforcement orders.
- b. Regional Water Boards may require submittal of FPPPs.
- c. Regional Water Boards may require retention of records for more than three years.
- d. To the extent authorized by the Water Code, Regional Water Boards may impose additional monitoring and reporting requirements and may provide guidance on monitoring plan implementation (Water Code, § 13383).
- e. Regional Water Board staff may inspect the Department's facilities, roads, highways, bridges, and construction sites.

- f. Regional Water Boards may issue other individual storm water NPDES permits or WDRs to the Department, particularly for discharges beyond the scope of this Order.

8. Requirements of Other Agencies

This Order does not preempt or supersede the authority of other State or local agencies (such as the Department of Toxic Substances Control or the California Coastal Commission) and local municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdictions as allowed by State and federal law.

9. Standard Provisions

The Department shall comply with the Standard Provisions (Attachment VI) and any amendments thereto.

10. Permit Compliance and Rescission of Previous Waste Discharge Requirements

This Order shall serve and become effective as an NPDES permit and the Department shall comply with all its requirements on July 1, 2013. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 99-06-DWQ, except for compliance purposes for violations occurring before the effective date of this Order.

11. Permit Re-Opener

This Order may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations 122.62, 122.63, 122.64, and 124.5. The State Water Board may reopen and modify this Order at any time prior to its expiration under any of the following circumstances:

- a. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.
- b. New or revised Water Quality Objectives come into effect, or any new TMDL is adopted or revised that assigns a WLA to the Department or that identifies the Department as a responsible party in the TMDL implementation plan. In such cases, effluent limitations and other requirements in this Order may be modified as necessary to reflect the new TMDLs or the new or revised Water Quality Objectives; or
- c. TMDL-specific permit requirements for adopted TMDLs are developed by a Regional Water Board for incorporation into this Order.

- d. The State Water Board determines, after opportunity for public comment and a public workshop, that revisions are warranted to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water.

12. Dispute Resolution

In the event of a disagreement between the Department and a Regional Water Board over the interpretation of any provision of this Order, the Department shall first attempt to resolve the issue with the Executive Officer of the Regional Water Board. If a satisfactory resolution is not obtained at the Regional Water Board level, the Department may submit the issue in writing to the Executive Director of the State Water Board or his designee for resolution, with a copy to the Executive Officer of the Regional Water Board. The issue must be submitted to the Executive Director within ten days of any final determination by the Executive Officer of the Regional Water Board. The Executive Officer of the Regional Water Board will be provided an opportunity to respond.

13. Order Expiration and Reapplication

- a. This Order expires on June 30, 2018.
- b. If a new order is not adopted by June 30, 2018, then the Department shall continue to implement the requirements of this Order until a new one is adopted.
- c. In accordance with Title 23, Division 3, Chapter 9 of the California Code of Regulations, the Department shall file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissuance of this permit and waste discharge requirements. The application shall be accompanied by a SWMP, and a summary of all available water quality data for the discharge and receiving waters, including conventional pollutant data from at least the most recent three years, and toxic pollutant data from at least the most recent five years, in the discharge and receiving water. Additionally, the Discharger shall include the final results of any studies that may have a bearing on the limits and requirements of the next permit.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

**FACT SHEET
FOR**

ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

This Fact Sheet contains information regarding the waste discharge requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit for the California State Department of Transportation (Department) for discharges of storm water and certain types of non-storm water. This Fact Sheet describes the factual, legal, and methodological basis for the permit conditions, provides supporting documentation, and explains the rationale and assumptions used in deriving the limits and requirements.

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act (CWA)) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act added section 402(p). Section 402(p) establishes that storm water discharges are point source discharges and lays out a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated final regulations that establish the storm water permit requirements.

Pursuant to the 1990 regulations, storm water permits are required for discharges from a municipal separate storm sewer system (MS4) serving a population of 100,000 or more. U.S. EPA defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State (40 Code of Federal Regulations

(C.F.R.), § 122.26(b)(8)). The regulations also require storm water permits for 11 categories of industry, including construction activities where the construction activity: (1) disturbs more than one (1) acre of land; (2) is part of a larger common plan of development; and/or (3) is found to be a significant threat to water quality.

Before July 1999, storm water discharges from Department storm water systems were regulated by individual NPDES permits issued by the Regional Water Quality Control Boards (Regional Water Boards). On July 15, 1999, the State Water Resources Control Board (State Water Board) issued a statewide permit (Order No. 99-06-DWQ), which regulated all storm water discharges from Department owned MS4s, maintenance facilities and construction activities. The existing permit (Order No. 99-06-DWQ) will be superseded by adoption of a new permit.

Industrial activities are covered by two General Permits that have been adopted by the State Water Board. The Department's construction activities are subject to the requirements under the NPDES General Permit for Construction Activities (CGP, NPDES Permit No. CAS000002) for construction activities that are equal to or greater than one (1) acre. The exception to this is in the Lake Tahoe area, where the Lahontan Regional Water Board adopted its own construction general permit (NPDES Permit No. CAG616002). The Department's industrial facility activities are subject to the requirements of the NPDES General Permit for Industrial Activities (IGP, NPDES Permit No. CAS000001).

The Department is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, the Department's facilities, and related properties. The Department's discharges consist of storm water and non-storm water discharges from State owned right-of-way (ROW).

Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. The State Water Board considers all storm water discharges from all MS4s and activities under the Department's jurisdiction as one system. Therefore, this Order is intended to cover all of the Department's municipal storm water activities.

This Order will be implemented by the Department and enforced by the State Water Board and nine Regional Water Boards.

The Department operates highways and highway-related properties and facilities that cross through local jurisdictions. Some storm water discharges from the Department's MS4 enter the MS4s owned and managed by these local jurisdictions. This Order does not supersede the authority of local agencies to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law. The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or state agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.

GENERAL DISCHARGE PROHIBITIONS

This Order authorizes storm water and conditionally exempt non-storm water discharges from the Department's properties, facilities and activities. This Order prohibits the discharge of material other than storm water, unless specifically authorized in this Order.

The Department owns and operates highway systems that are located adjacent to and discharge into many ASBS. This Order specifies that Department discharges to an ASBS are prohibited except in compliance with the conditions and special protections contained in the General Exception for Storm Water and Non-Point Source Discharges to ASBS, State Water Board Resolution 2012-0012. This State Water Board resolution is hereby incorporated by reference and the Department is required to comply with applicable requirements. Attachment III identifies 77 priority Department ASBS discharge locations. These locations represent sites having significant potential to impact the ASBS that are feasible to retrofit. The following locations are not included in the list:

1. Inland sites discharging indirectly to the ASBS;
2. Sites where the discharge is attenuated through vegetation;
3. Sites where it is infeasible to install a BMP, e.g. an overhanging outfall or where there is insufficient space to install a treatment control; and
4. Sites that would pose a safety hazard to motorists, or that would be unsafe to install or maintain.

Provision E.5 of the Order requires the Department to ensure that structural controls at these locations are operational within six (6) years of the effective date of the General Exception.

NON-STORM WATER

Non-storm water discharges are subject to different requirements under the Order depending on whether they are discharged to ASBS.

Non-storm water discharges outside ASBS:

Non-storm water discharges must be effectively prohibited unless they are authorized by a separate NPDES permit or are conditionally exempt under provisions of the Order consistent with 40 CFR, §122.26 (d)(2) (iv)(B). Non-storm water discharges that are not specifically or conditionally exempted by this Order are subject to the existing regulations for point source discharges. Conditionally exempt non-storm water discharges that are found to be significant sources of pollution are to be effectively prohibited.

Discussion of Agricultural Return Flows:

The Department (2007a) indicated in its Non-Storm Water Report that agricultural irrigation water return flows carrying pollutants pass under the Department's ROW in many locations and enter its MS4. Agricultural return flows are not prohibited or conditionally exempted non-

storm water discharges and are not subject to the non-storm water requirements of the Order.

The regulations conditionally exempt MS4s from the requirement to effectively prohibit “irrigation water” discharges to the MS4. The regulations also completely exempt MS4s from addressing non-storm water discharges (also called “illicit discharges”) if they are regulated by an NPDES permit (40 C.F.R., §§ 122.26(b)(2); 122.26(d)(2)(iv)(B)). The term “irrigation water” is not defined and the regulations do not clarify whether that term is intended to encompass agricultural return flows that may run on to the Department’s rights of way.

Because agricultural return flows cannot be regulated by an NPDES permit, it is unlikely that they were intended to be treated as “illicit discharges” under the federal MS4 regulations. In discussing illicit non-storm water discharges and the requirement to effectively prohibit such discharges, the preamble of the Phase I final regulations states: “The CWA prohibits the *point source* discharge of non-storm water not subject to an NPDES permit through municipal separate storm sewers to waters of the United States. Thus, classifying such discharges as illicit properly identifies such discharges as being illegal” (55 FR 47996) (emphasis added). Implicit in this statement is that illicit discharges do not include non-point source discharges, including agricultural return flows, which are statutorily excluded from the definition of a point-source discharge (C.W.A., § 502(14)).¹³

Clean Water Act Section 402(l)(1) states that an NPDES permitting agency “shall not require a permit under this section for discharges composed entirely of return flows from irrigated agriculture.” Accordingly, agricultural return flows co-mingling with an illicit discharge would be treated as a point source discharge. This fact, however, does not lead the State Water Board to find that agricultural return flows should be subject to the conditional prohibition on non-storm water discharges.

First, the illicit discharge prohibition acts to prevent non-storm water discharges “*into the storm sewers*” (C.W.A., § 402(p)(3)(B)(ii)) (emphasis added). Based on a plain reading of the statutory language,¹⁴ a determination of what constitutes an illicit discharge should be made with reference to the nature of the discharge as it enters the MS4. Unless the agricultural return flow has co-mingled with a point source discharge prior to entering the MS4, it is not subject to the discharge prohibition. Further, since certain point source discharges are conditionally exempted from the requirement for effective prohibition under 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(1), the fact that the agricultural return flow may have co-mingled with such an exempted dry weather point source discharge prior to entering the MS4 does not render it an illicit discharge subject to the effective

¹³ Elsewhere in the preamble, EPA refers to the conditionally exempted non-storm water discharges as “seemingly innocent flows that are characteristic of human existence *in urban environments* and which discharge to municipal separate storm sewers” (55 F.R.48037) (emphasis added). This language further suggests that the term “irrigation water” was not intended to encompass irrigation return flows characteristic of a rural area.

¹⁴ 40 C.F.R. §122.26(d)(2)(iv)(B)(1) similarly states that the MS4 is to “prevent illicit discharges *to the municipal separate storm sewer system.*” (Emphasis added.)

prohibition.¹⁵ See *Fishermen Against the Destruction of the Environment, Inc. v. Closter Farms, Inc.* (11th Cir. 2002) 300 F.3d 1294.

Second, even assuming that the agricultural return flow mingling with a point source discharge *after* entering the MS4 would trigger the requirements related to non-storm water discharges, agricultural return flows are not expected to require an effective prohibition. Irrigation of agricultural fields typically occurs in dry weather, not wet weather, and therefore the State Water Board anticipates that irrigation return flows into the Department's MS4 would generally not co-mingle with discharges other than exempt non-storm water discharges.

Further, agricultural return flows entering an MS4, while not regulated by an NPDES permit, are through much of the State regulated under WDRs, waivers, and Basin Plan prohibitions. The regulations exempt MS4s from addressing non-storm water discharges that are regulated by an NPDES permit. Flows to the Department's MS4 regulated through state-law based permits are subject to regulatory oversight analogous to being subject to an NPDES permit. The appropriate regulatory mechanism for these discharges is the non-point source regulatory programs and not a municipal storm water permit.¹⁶

Non-Storm Water Discharges to ASBS:

Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally.

Discussion of Utility Vault Discharges:

In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that

¹⁵ The Federal Register discussion clarifies that "irrigation return flows are excluded from regulation under the NPDES program," but that "joint discharges," i.e. discharges with a component "from activities unrelated to crop production" may be regulated (55 FR 47996).

¹⁶ It should also be noted that the Department has limited control options since up gradient flows such as agricultural runoff must in many cases be allowed to flow under or alongside the roadway so as to not threaten roadway integrity.

discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to MS4s with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order. It should also be noted that, under the California Ocean Plan Section III.E.2 (Implementation Provisions for ASBS), limited-term activities that result in temporary and short-term changes in existing water quality in the ASBS may be permitted.

EFFLUENT LIMITS

The State of California Nonpoint Source Program Five-Year Implementation Plan (SWRCB, 2003) (the Plan) describes a variety of pollutants in urban storm water and non-storm water that are carried in MS4 discharges to receiving waters. These include oil, sand, de-icing chemicals, litter, bacteria, nutrients, toxic materials and general debris from urban and suburban areas. The Plan identifies construction as a major source of sediment erosion and automobiles as primary sources of petroleum hydrocarbons.

The Natural Resources Defense Council (NRDC) also identified two main causes of storm water pollution in urban areas (NRDC, 1999). Both identified causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious cover that increase the volume and velocity of runoff: (i) rooftops, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

NPDES storm water permits must meet applicable provisions of sections 301 and 402 of the Clean Water Act. For discharges from an MS4, Clean Water Act section 402(p)(3)(B)(iii) requires control of pollutants to the maximum extent practicable (MEP). A permitting agency also has the discretion to require dischargers to implement more stringent controls, if

necessary, to meet water quality standards (*Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1166.), (discussed below under Receiving Water Limitations).

MEP is the technology-based standard established by Congress in Clean Water Act section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve. MEP is generally achieved by emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate. The MEP approach is an ever evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP.

In a precedential order (State Water Board Order WQ 2000-11 (In the Matter of the petitions of the Cities of Bellflower et al.)), the State Water Board has stated as follows:

While the standard of MEP is not defined in the storm water regulations or the Clean Water Act, the term has been defined in other federal rules. Probably the most comparable law that uses the term is the Superfund legislation, or CERCLA, at section 121(b). The legislative history of CERCLA indicates that the relevant factors, to determine whether MEP is met in choosing solutions and treatment technologies, include technical feasibility, cost, and state and public acceptance. Another example of a definition of MEP is found in a regulation adopted by the Department of Transportation for onshore oil pipelines. MEP is defined as to “the limits of available technology and the practical and technical limits on a pipeline operator”

These definitions focus mostly on technical feasibility, but cost is also a relevant factor. There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a permittee employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. Thus while cost is a factor, the Regional Water Board is not required to perform a cost-benefit analysis.

The final determination of whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the permitting agency, and not by the discharger.

Because of the numerous advances in storm water regulation and management and the size of the Department’s MS4, this Order does not require the Department to fully incorporate and

implement all advances in a single permit term. The Order allows for prioritization of efforts to ensure the most effective use of available funds.

This Order will have an impact on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges. Recognizing that there are cost increases associated with the Order, the State Water Board has prepared a cost analysis to approximate the anticipated cost associated with implementing this permit. The resulting cost analysis is discussed later in this Fact Sheet under the section on "Cost of Compliance and Other MEP Considerations." The cost analysis has been prepared based on available data and is not a cost-benefit analysis.

The individual and collective activities required by this Order and contained in the Department's Storm Water Management Plan (SWMP) meet the MEP standard.

RECEIVING WATER LIMITATIONS

Under federal law, an MS4 permit must include "controls to reduce the discharge of pollutants to the maximum extent practicable . . . and such other provisions as . . . the State determines appropriate for the control of such pollutants." (Clean Water Act §402(p)(3)(B)(iii).) The State Water Board has previously determined that limitations necessary to meet water quality standards are appropriate for the control of pollutants discharged by MS4s and must be included in MS4 permits. (State Water Board Orders WQ 91-03, 98-01, 99-05, 2001-15; see also *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F3d 1159.). The Proposed Order accordingly prohibits discharges that cause or contribute to violations of water quality standards.

The Proposed Order further sets out that, upon determination that a Permittee is causing or contributing to an exceedance of applicable water quality standards, the Permittee must engage in an iterative process of proposing and implementing additional control measures to prevent or reduce the pollutants causing or contributing to the exceedance. This iterative process is modeled on receiving water limitations set out in State Water Board precedential Order WQ 99-05 and required by that Order to be included in all municipal storm water permits.

The Ninth Circuit held in *Natural Resources Defense Council, Inc. v. County of Los Angeles* (2011) 673 F.3d 880 that engagement in the iterative process does not provide a safe harbor from liability for violations of permit terms prohibiting exceedances of water quality standards. The Ninth Circuit holding is consistent with the position of the State Water Board and Regional Water Boards that exceedances of water quality standards in an MS4 permit constitute violations of permit terms subject to enforcement by the Boards or through a citizen suit. While the Boards have generally directed dischargers to achieve compliance by improving control measures through the iterative process, the Board retains the discretion to

take other appropriate enforcement and the iterative process does not shield dischargers from citizen suits.

The State Water Board has received multiple comments, from the Department and from other interested parties, expressing confusion and concern about the Order provisions regarding receiving water limitations and the iterative process. The Department has commented that the provisions as currently written do not provide the Department with a viable path to compliance with the proposed Order. Other commenters, including environmental parties, support the current language.

As stated above, the provisions in this Order regarding receiving water limitations and the iterative process are based on precedential Board orders. Accordingly, substantially identical provisions are found in the proposed statewide Phase II MS4 NPES permit, as well as the Phase I NPDES permits issued by the Regional Water Boards. In the context of the proposed Phase II MS4 permit, similar comments have been received. Because of the broad applicability of any policy decisions regarding the receiving water limitations and iterative process provisions, the State Water Board has proposed a public workshop to consider this issue and seek public input.

Rather than delay consideration of adoption of the tentative Order in anticipation of any future changes to the receiving water limitations and iterative process provisions that may result from the public workshop and deliberation, the Board has added a specific reopener clause at Section 11.d. to facilitate any future revisions as necessary.

NUMERIC EFFLUENT LIMITATIONS AND BLUE RIBBON PANEL OF EXPERTS

Under 40 Code of Federal Regulations section 122.44(k)(2)&(3); the State Water Board may impose BMPs for control of storm water discharges in lieu of numeric effluent limitations.¹⁷

In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits, how such limitations should be established, and what data should be required (SWRCB, 2006).

¹⁷ On November 12, 2010, U.S. EPA issued a revision to a November 22, 2002 memorandum in which it had “affirm[ed] the appropriateness of an iterative, adaptive management best management practices (BMP) approach” for improving storm water management over time. In the revisions, U.S. EPA recommended that, in the case the permitting authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality excursion, the permitting authority, where feasible, include numeric effluent limitations as necessary to meet water quality standards. However, the revisions recognized that the permitting authority’s decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit. U.S. EPA has since invited comment on the revisions to the memorandum and will be making a determination as to whether to “either retain the memorandum without change, to reissue it with revisions, or to withdraw it.”

http://www.epa.gov/npdes/pubs/sw_tmdlwla_comments_pdf

The report concluded that “It is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges. However, it is possible to select and design them much more rigorously with respect to the physical, chemical and/or biological processes that take place within them, providing more confidence that the estimated mean concentrations of constituents in the effluents will be close to the design target.”

Consistent with the findings of the Blue Ribbon Panel and precedential State Water Board orders (State Water Board Orders Nos. WQ 91-03 and WQ 91-04), this Order allows the Department to implement BMPs to comply with the requirements of the Order.

In 1980, the State Water Resources Control Board adopted concentration-based numeric effluent limitations for total nitrogen, total phosphate, total iron, turbidity, and grease and oil for storm water discharges in the Lake Tahoe Basin. The Lahontan Regional Water Board included revised versions of those limitations in Table 5.6-1 of the Water Quality Control Plan for the Lahontan Region (Basin Plan). The numeric effluent limitations in Table 5.6-1 were included in previous iterations of the Department's MS4 permit. This Order does not include these referenced numeric effluent limitations. The TMDL for sediment and nutrients in Lake Tahoe, approved by U.S. EPA on August 16, 2011, removed statements from the Basin Plan requiring the effluent limitations in Table 5.6-1 to apply to municipal jurisdictions and the Department. The Lake Tahoe TMDL would constitute cause for permit revocation and reissuance in accordance with 40 Code of Federal Regulations section 122.62(a)(3), so the removal of the referenced numeric effluent limitations is consistent with 40 Code of Federal Regulations section 122.44(l)(1). Further, any water quality based effluent limitations in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C), and are accordingly not subject to the antibacksliding requirements of section 402(o). The Order requires compliance with pollutant load reduction requirements established by the Lake Tahoe TMDL for total nitrogen, total phosphorus, and fine sediment particles.

OTHER PROVISIONS OF THIS ORDER

Storm Water Management Plan (SWMP)

The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management Practices (BMP) controls and many

other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007 (Department, 2007c). The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

This Order requires the Department to update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order. Within one year of the effective date of the Order, the Department shall submit for Executive Director approval a SWMP consistent with the provisions and requirement of the Order. The SWMP is an integral and enforceable component of this Order and is required to be updated on an annual basis.

In ruling upon the adequacy of federal regulations for discharges from small municipal storm sewer systems, the court in *Environmental Defense Center v. United States EPA* (9th Cir. 2003) 344 F.3d 832 held that NPDES “notices of intent” that required the inclusion of a proposed storm water management program (SWMP) are subject to the public participation requirements of the federal Clean Water Act because they are functionally equivalent to NPDES permit applications and because they contain “substantive information” about how the operator will reduce its discharges to the maximum extent practicable. By implication, the public participation requirements of the Clean Water Act may also apply to proposals to revise the Department’s SWMP. Although the Proposed Order contains significantly more detailed and prescriptive requirements for achievement of MEP than previously adopted orders for the Department, some of the substantive information about how MEP will be achieved is arguably still set out in the SWMP. This Order accordingly provides for public participation in the SWMP revision process. However, because there may be a need for numerous revisions to the SWMP during the term of this Order, a more streamlined approach to SWMP revisions is needed to provide opportunities for public hearings while preserving the State Water Board’s ability to effectively administer its NPDES storm water permitting program. (See *Costle v. Pacific Legal Foundation* (1980) 445 U.S. 198, 216-221, *Natural Resources Defense Council v. Costle* (9th Cir. 1977) 568 F.2d 1369, 1382.)

This Order establishes that revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board’s website (except as otherwise specified). During the public notice period, a member of the public may submit a written comment or request that a public hearing be conducted. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing to take place before approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director may approve the SWMP revision if it meets the conditions set forth in this Order.

Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.

The Department references various policies, manuals, and other guidance related to storm water in the SWMP. These documents are intended to facilitate implementation of the SWMP and must be consistent with all requirements of the Order.

In addition to the annual submittal of the proposed SWMP revisions, this Order also requires the Department to submit workplans that explain how the program will be implemented in each District. The purpose of the workplans is to bring the proposed statewide program of the SWMP to the practical and implementable level at the District, watershed, and water body level.

Legal Authority

The Department has submitted a certification of adequate legal authority to implement the program. Through implementation of the storm water program, the Department may find that the legal authority is, in fact, not adequate. This Order requires the Department to reevaluate the legal authority each year and recertify that it is adequate. The Department is required to submit the Certification of the Adequacy of Legal Authority as part of the Annual Report each year. If it becomes clear that the legal authority is not adequate to fully implement the SWMP and the requirements of this Order, the Department must seek the authority necessary for implementation of the program.

SWMP Implementation Requirements

Management and Organization

The Department must maintain adequate funding to implement an effective storm water program and must submit an analysis of the funding each year. This includes a report on the funding that is dedicated to storm water as well as an estimate of the funding that has been allocated to various program elements that are not included in the storm water program funding. An example of this would be to estimate the funding that has been made available to the Maintenance Program to implement the development of Maintenance Facility Pollution Prevention Plans (FPPP) and to implement the Best Management Practices (BMPs) that are necessary for water quality.

The Department's facilities and rights-of-way may cross or overlap other MS4s. The Department is required to coordinate their activities with other municipalities and local governments that have responsibility for storm water runoff. This Order requires the Department to prepare a Municipal Coordination Plan describing the approach that the Department will take in establishing communication, coordination, cooperation and collaboration with other storm water management programs.

Discharge Monitoring and Reporting Program

Since 1998, the Department has conducted monitoring of runoff from representative transportation facilities throughout California. The key objectives of the characterization

monitoring were to produce scientifically credible data on runoff from the Department's facilities, and to provide useful information in designing effective storm water management strategies. Between 2000 and 2003, the Department conducted a three-year characterization monitoring study (Department, 2003b). The study generated over 60,000 data points from over 180 monitoring sites. Results were compared with California Toxics Rule (CTR) objectives and other relevant receiving water quality objectives (U.S. EPA, 2000b). Copper, lead, and zinc were estimated to exceed the CTR objectives for dissolved and total fractions in greater than 50 percent of samples. Diazinon and chlorpyrifos were also found to exceed the California Department of Fish and Game recommended chronic criteria in a majority of samples.

The discharge monitoring program has been structured to focus on the highest priority water quality problems in order to ensure the most effective use of limited funds. A tiered approach is established that gives first priority to monitoring in ASBS and TMDL watersheds. Monitoring in these locations must be conducted pursuant to the applicable requirements of the ASBS Special Protections or TMDL, without limitation as to the number of sites. The second monitoring tier requires the Department to examine and prioritize existing monitoring locations where existing data show elevated levels of pollutants. Fifteen percent of the highest priority sites must be scheduled for retrofit, with a maximum of 100 sites per year.

Monitoring constituents were chosen by the State Water Board from the results of the Department's comprehensive, multi-component storm water characterization monitoring program conducted in 2002 and 2003 and various other characterization studies.

Toxicity in storm water discharges from the Department's rights-of-way has been reported in a number of studies. A 2005 report prepared for the Department by the University of California at Davis "Toxicity of Storm Water from Caltrans Facilities" reported significant occurrences of acute and chronic toxicity (Department, 2005). Toxicity Identification Evaluations showed toxicity from a number of compounds, including heavy metals, organic compounds, pesticides and surfactants. Toxicity testing is required under the Order, and a workplan for conducting Toxicity Reduction Evaluations is required to be included in the SWMP.

Monitoring data must be filed electronically in the Storm Water Multiple Application Report and Tracking System (SMARTS). Receiving water monitoring data must be comparable¹⁸ with the Surface Water Ambient Monitoring Program (SWAMP), (SWAMP, 2010), and must be uploaded to the California Data Exchange Network (CEDEN).

¹⁸ U.S. EPA defines comparability as the measure of confidence with which one data set, element, or method can be considered as similar to another. Functionally, SWAMP comparability is defined as adherence to the SWAMP Quality Assurance Program Plan and the Surface Water Ambient Monitoring Program Information Management Plan.

Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance

The Department may at times be out of compliance with the requirements of this Order. Incidents of non-compliance and potential or threatened non-compliance must be reported to the State and Regional Water Boards. This Order identifies the conditions under which non-compliance reporting will be required. This Order distinguishes between emergency, field, and administrative (procedural) incidents that require notification to the State and Regional Water Boards, and requires that a summary of non-compliance incidents and the subsequent actions taken by the Department to reduce, eliminate and prevent the reoccurrence of the non-compliance be included in the Annual Report.

Emergency, field and administrative incidents are defined in Attachment I and have separate reporting requirements. Generally, failure to meet any permit requirement that is local or regional in nature will be reported to the Regional Water Boards. Attachment I outlines the reporting timelines for the three categories. This reporting will be conducted through the Storm Water Multiple Application Report and Tracking System (SMARTS)¹⁹. Distribution of this report internally between the State Water Board and any Regional Water Boards will be conducted through this system.

Project Planning and Design

In Order WQ 2000-11, the State Water Board considered Standard Urban Storm Water Mitigation Plans (SUSMPs) related to new development and redevelopment. The SUSMPs include a list of BMPs for specific development categories, and a numeric design standard for structural or treatment control BMPs. The numeric design standard created objective and measurable criteria for the amount of runoff that must be treated or infiltrated by BMPs. While this Order does not regulate construction activities, it does regulate the post-construction storm water runoff pursuant to municipal storm water regulations. SUSMPs are addressed in this Order through the numeric sizing criteria that apply to treatment BMPs at specified new and redevelopment projects and through requirements to implement Low Impact Development through principles of source control, site design, and storm water treatment and infiltration.

The Order provides the Department with an alternative compliance method for complying with the Treatment Control BMP numeric sizing criteria for projects where on-site treatment is infeasible. Under that method, the Department may propose complying with the requirements by installing and maintaining equivalent treatment BMPs at an offsite location (meaning outside of Project Limits) within the watershed, or by contributing funds to achieve the same amount of treatment at a regional project within the watershed. This compliance method will provide some flexibility to the Department in meeting the treatment control requirements.

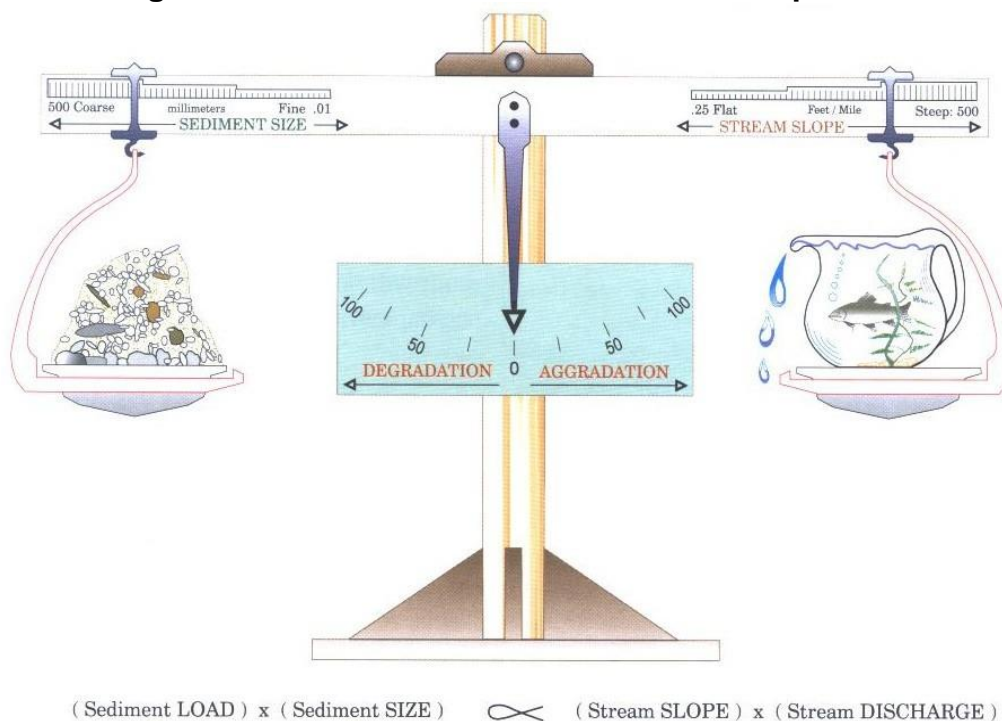
¹⁹ <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

Hydromodification and Channel Protection

Department development and redevelopment projects have the potential to negatively impact stream channels and downstream receiving waters. The potential impacts of hydromodification by Department projects must be assessed in the project planning and design stage, and measures taken to mitigate them. This section describes the rationale and approach for the hydromodification and channel protection requirements.

A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bankfull discharge. The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which the moving sediment, forming or removing bars, and forming or changing bends and meanders, are doing work that results in the average morphologic characteristics of channels (Finkenbine, 2000). A.W. Lane showed the generalized relationship between sediment load, sediment size, stream discharge and stream slope, as shown in Figure 1, (Rosgen, 1996). A change in any one of these variables sets up a series of mutual adjustments in the companion variables resulting in a direct change in the physical characteristics of the stream channel.

Figure 1 - Schematic of the Lane Relationship



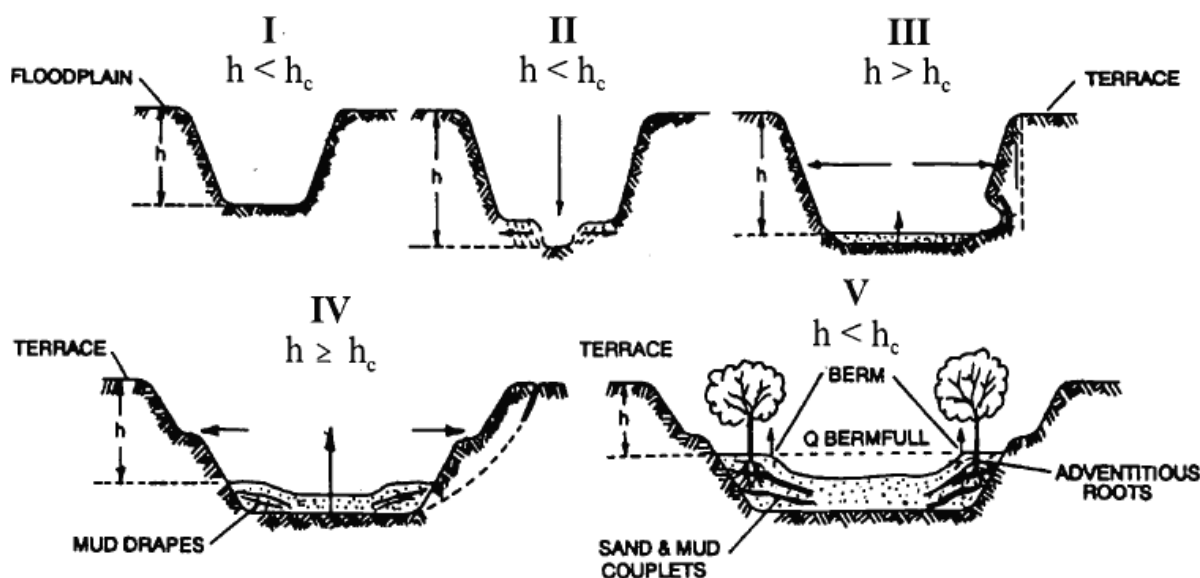
After Lane (1955) as cited in Rosgen (1996)

Stream slope times stream discharge (the right side of the scale) is an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe, 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (represented as sediment load and sediment size on the left side of the scale).

During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels (Goldman, 1986). Most of this sediment is delivered to stream channels during large, episodic rain events (Wolman, 2001). This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and an increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et al (Schumm, 1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 2).

Figure 2 - Channel Changes Associated with Urbanization



h = bank height

h_c = critical bank height (the bank is susceptible to failure when bank heights are greater than critical bank height. Stable banks have low angles and heights)

After Incised Channel Evolution Sequence in Schumm et al. 1984

Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious area and compaction of pervious surfaces increase the frequency and volume of bankfull discharges (Stein, 2005; Booth, 1997), resulting in an increase in stream power. Increased drainage density (miles of stream length per square mile of watershed) also affects receiving channels (May, 1998; SCVURPPP, 2002). Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bankfull discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often “sediment starved” and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization (Finkenbine, 2000; Pizzuto, 2000). This means that even if pre- and post-development stream power are the same, more erosion will occur in the post-development stage because the smaller particles are less resistant.

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power (Hammer, 1973; Booth, 1990) and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel (Trimble, 1997). After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening (Trimble, 1997). At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution (Trimble, 1997). Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein, 2005).

The hydromodification requirements in this Order are based on established Federal Highway Administration procedures for assessing stream stability at highway crossings. These procedures are geomorphically based and have historically been used to inform bridge and culvert design and to ensure that these structures are not impacted by decreased lateral and vertical stability (FHWA, 2001; FHWA, 2006). Maintaining lateral and vertical stability will not only protect highway structures but will serve the broader interest of maintaining stable stream form and function.

These hydromodification requirements are risk based and reflect the concept that stable channels (as determined from a Level 1 rapid analysis) do not have to undergo any further analysis and that hydrology-based design standards are protective.

If stream channels are determined to be laterally and or vertically unstable, the analysis procedures are much more rigorous and the mitigation measures are potentially more extensive. There is support in the literature for the type of tiered, risk-based approach taken in this Order (Booth, 1990; Watson, 2002; Bledsoe, 2002; Bledsoe et al., 2008).

California Senate Bill 857 (2006) amended Article 3.5 of the Streets and Highways Code to require the Department to assess and remediate barriers to passage of anadromous fish at stream crossings along the State Highway System. The bill also requires the Department to, among other things, prepare an annual report to the legislature on the status of the Department's efforts in locating, assessing, and remediating barriers to fish passage. Waters of the State supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes. Accordingly, this Order requires the Department to also submit the annual report required under SB 857 to the State Water Board.

Low Impact Development (LID)

On January 20, 2005, the State Water Board adopted sustainability as a core value for all California Water Boards' activities and programs, and directed State Water Board staff to consider sustainability in all future policies, guidelines, and regulatory actions. Sustainability can be achieved through appropriate implementation of the LID techniques required by this Order.

The proper implementation of LID techniques not only results in water quality protection benefits and a reduction of land development and construction costs, but also enhances property values, and improves habitat, aesthetic amenities, and quality of life (U.S. EPA, 2007). Further, properly implemented LID techniques reduce the volume of runoff leaving a newly developed or re-developed area thereby lowering the peak rate of runoff, and thus minimizing the adverse effects of hydromodification on stream habitat (SWRCB, 2007). The requirements of this Order facilitate the implementation of LID strategies to protect water quality, reduce runoff volume, and to promote sustainability.

Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID takes a different approach by using site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's pre-development hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional storm water management.

LID is a tool that can be used to better manage natural resources and limit the pollution delivered to waterways. To achieve optimal benefits, LID needs to be integrated with watershed planning and appropriate land use programs. LID by itself will not deliver all the water quality outcomes desired; however, it does provide enhanced storm water treatment and mitigates increased volume and flow rates (SWRCB, 2007).

This Order approaches LID through source control design principles, site design principles and storm water treatment and infiltration principles. Source control and site design principles are required as applicable to provide enough flexibility such that projects are not forced to include inappropriate or impractical measures. Not all of the storm water treatment

and infiltration principles identified in the Order are required to be implemented but are listed in order of preference with the most environmentally protective and effective alternatives listed first.

BMP Development and Implementation

The Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes development, construction, maintenance and evaluation of BMPs, and investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to the applicable standards.

While erosion control BMPs are typically used on construction sites, some are used as permanent, post-construction BMPs. Typical erosion control BMPs involve use of straw or fiber rolls and mats. These rolls and mats are often held together by synthetic mesh or netting. Synthetic materials are persistent in the environment and have been found to be a source of pollutants, trash (Brzozowski, 2009), and hazard to wildlife through entrapment (Brzozowski, 2009; Barton and Kinkead, 2005; Walley et al, 2005; Stuart et al, 2001). For erosion control products used as permanent, post-construction BMPs, this Order requires the use of biodegradable materials, and the removal of any temporary erosion control products containing synthetic materials when they are no longer needed. Biodegradable materials are required in erosion control products used by the Departments of Transportation in the states of Delaware and Iowa (Brzozowski, 2009). Use of synthetic (plastic) materials is also prohibited through a Standard Condition in Streambed Alteration Agreements by the California Department of Fish and Game, Region 1 (Van Hattem, personal communication, 2009).

Potential Unintended Public Health Concerns Associated with Structural BMPs

The Department worked collaboratively with the California Department of Public Health (CDPH) on a comprehensive, multi-component monitoring program of more than 120 structural BMPs for mosquito production (Department, 2004). The data revealed that certain BMPs may unintentionally create habitat suitable for mosquitoes and other vectors. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers. This Order requires the Department to comply with applicable provisions of the Health and Safety Code and to cooperate and coordinate with CDPH and local mosquito and vector control agencies on vector control issues in the Department's MS4.

Construction

The Department's construction activities were previously regulated under the MS4 permit (Order 99-06-DWQ), which required the Department to comply with the substantive provisions of the CGP but not the requirement to file separate notices of intent for each construction project. Some Regional Water Boards have had difficulty enforcing the provisions of the CGP when enrollment under that permit is not required. This Order requires the Department to file for separate coverage for each construction project under the

CGP. This change is expected to increase the Department's accountability for discharges from construction sites and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Though discharges from construction activities are not regulated under this Order, any discharges from a site occurring after completion of construction (i.e. post-construction discharges) are fully subject to the requirements of this Order.

Some Department construction-related activities such as roadway and parking lot repaving and resurfacing may mobilize pollutants, even though they may not trigger coverage under the CGP. Such activity may discharge pollutants to the environment, however. BMPs for the control of such discharges are specified in the Department's Project Planning and Design Guide and Construction Site BMP Field Manual and Trouble Shooting Guide, and in the California Stormwater Quality Association (CASQA) California Stormwater BMP Handbook (Department, 2010; Department, 2003a); (CASQA, 2009). The Department is required to implement BMPs to control such discharges.

Because some Department construction projects may not involve grading or land disturbance of one acre or more, these smaller projects do not trigger requirements to enroll under the Construction General Permit. This Order requires the Department to implement BMPs to control discharges from such projects to the MEP. Failure to implement appropriate BMPs is a violation of this Order.

Maintenance Program Activities

Preservation of vegetation is an effective method for the control of pollutants in runoff; however the Department must control vegetation in its rights-of-way for purposes of traffic safety and nuisance. The Department currently implements a vegetation control program with a stated purpose of minimizing the use of agricultural chemicals and maximizing the use of appropriate native and adapted vegetation for erosion control, filtering of runoff, and velocity control.

Notwithstanding the Department's commitment to reduce the use of agricultural chemicals, the Department reported a total amount of 208,549 pounds of herbicide used in the 2008-2009 Storm Water Management Program Annual Report (Department (2010a); CTSW-RT-10-182-32.1). Reported reasons for increased herbicide usage included:

1. Local weather conditions, such as increased rainfall, leading to increased weed production.
2. The need to address new mandates for fire suppression (fuel abatement) adjacent to roadways.
3. Requests from local cities and counties.
4. Increase in or outbreaks of noxious weeds in areas adjacent to farmland.

This Order contains detailed requirements for the control of vegetation and reporting requirements for the use of agricultural chemicals.

The Department's maintenance facilities discharge pollutants to the MS4. This Order requires the Department to prepare Facility Pollution Prevention Plans (FPPPs) for all maintenance facilities. The Department is also required to implement BMP programs at each facility as necessary and periodically inspect each facility.

Spill cleanup is part of the Department's maintenance program. This Order requires the Department to ensure that spills on its rights-of-way are fully and appropriately cleaned up, and to provide appropriate notifications to local municipalities which may be affected by the spill. The Department is also required to notify the appropriate Regional Water Board of any spill with the potential to impact receiving waters.

This Order requires the Department to monitor and clean storm drain inlets when they have reached 50 percent capacity. The Department must initiate procedures contained in an Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response Plan where storm water structures are found to contain excessive material resulting from illegal dumping, and it must determine if enhanced BMPs are needed at the site.

This Order requires the Department to implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs. It also requires the Department to prepare a Storm Drain System Survey Plan and an Illegal Dumping Response Plan.

Facilities Operations

There is potential for the discharge of pollutants from Department facilities during rain events. The discharge of pollutants from facilities not covered by the IGP will be reduced to the MEP through the appropriate implementation of BMPs.

This Order requires the Department to file an NOI for coverage under the IGP for industrial facilities as specified in Attachment 1 of the IGP. This requirement is expected to increase the Department's accountability for discharges from industrial facilities and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Department Activities Outside the Department's Right-of-Way

Facilities and operations outside the Department's ROW may support various Department activities. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads. Facilities may be operated by the Department or by a third party. The Department is required to include provisions in its contracts that require the contractor to obtain and comply with applicable permits for facilities and operations outside the Department's ROW when these facilities are active for the primary purpose of accommodating Department activities.

Non-Department Projects and Activities

Non-Department projects and activities include construction projects or other activities conducted by a third party within the Department's ROW. The Department is responsible for runoff from all non-Department projects and activities in its rights-of-way unless a separate

permit is issued to the other entity. At times, local municipalities or private developers may undertake construction projects or other activities within the Department's ROW. The Department may exercise control or oversight over these third party projects or activities through encroachment permits or other means. This Order sets project planning and design requirements for non-Department projects.

Management Activities for Non-Storm Water Discharges

Non-storm water discharges are dry weather flows that do not originate from precipitation events. Non-storm water discharges are illicit discharges and are prohibited by the federal regulations (40 C.F.R., § 122.26 (d)(2)(iv)(B)(1)) unless exempted or separately permitted. Procedures for prohibiting illicit discharges and illegal connections, and for responding to illegal dumping and spills are needed to prevent environmental damage and must be described in the SWMP.

Training and Public Education

Education is an important element of municipal storm water runoff management programs. U.S. EPA (2005) finds that "An informed and knowledgeable community is crucial to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters."

U.S. EPA also states "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children."

This Order requires the Department to implement a Training and Public Education program. The Training and Public Education program focuses on three audiences: Department employees, Department contractors, and the general public. The Department must implement programs for all three audiences. The Training and Public Education program is considered a BMP and an analysis of its effectiveness is needed.

Program Evaluation

This Order requires the Department to evaluate the effectiveness and adequacy of the storm water program on an annual basis. This includes both water quality monitoring and a self-audit of the program. The audit is intended to determine the effectiveness of the storm water and non-storm water programs through the evaluation of factors and program components such as:

1. Storm water and non-storm water discharges, including pollutant concentrations from locations representative of the Department's properties, facilities, and activities;
2. Maintenance activity control measures;
3. Facility pollution prevention plans;

4. Permanent control measures; and
5. Highway operation control measures.

In addition to water quality monitoring and the self-audit, the Department must perform an Overall Program Effectiveness Evaluation each year to determine the effectiveness of the program in achieving environmental and water quality objectives. The scope of the evaluation is expected to increase each year in response to the continuing collection of environmental monitoring data.

Reporting

Comprehensive reporting is needed to determine compliance with this Order and to track the effectiveness of the Department's storm water program over time. A summary of the reports required from the Department is presented in Attachment IX of the Order. The State Water Board and Regional Water Boards have the authority under various sections of the California Water Code to request additional information as needed.

The Department must track, assess and report on program implementation to ensure its effectiveness. In addition to the individual reports referenced above, the Department is required to submit an annual report to the State Water Board by October 1 of each year. The Annual Report must evaluate compliance with permit conditions, evaluate and assess the effectiveness of BMPs, summarize the results of the monitoring program, summarize the activities planned for the next reporting cycle, and, if necessary, propose changes to the SWMP.

Total Maximum Daily Loads (TMDL)

Section 303(d) of the Clean Water Act requires States to identify waters ("impaired" water bodies) that do not meet water quality standards after applying certain required technology-based effluent limits. States are required to compile this information in a list and submit the list to the U.S. EPA for review and approval. This list is known as the Section 303(d) list of impaired waters.

As part of the listing process, States are required to prioritize waters/watersheds for future development of TMDLs. A TMDL is defined as the sum of the individual waste load allocations (WLAs) for point sources of pollution, plus the load allocations (LAs) for nonpoint sources of pollution, plus the contribution from background sources of pollution and a margin of safety. The State Water Board and Regional Water Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs.

TMDLs are developed by either the Regional Water Boards or U.S. EPA in response to Section 303(d) listings. TMDLs developed by Regional Water Boards include implementation provisions and can be incorporated as Basin Plan amendments. TMDLs developed by U.S. EPA typically contain the total load and load allocations required by Section 303(d), but do not contain comprehensive implementation provisions. Subsequent

steps after Regional Water Board TMDL development are: approval by the State Water Board, approval by the Office of Administrative Law, and ultimately, approval by U.S. EPA.

The Department has been assigned mass based and concentration based WLAs for constituents contributing to a TMDL in specific regions. The Department is subject to TMDLs in the North Coast, San Francisco Bay, Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River, Santa Ana, and San Diego Regions. These TMDLs are summarized in Table 1 of this Fact Sheet below, and Table IV.2 of Attachment IV of this Order.

Table 1. Department Statewide TMDLs

Water Body	Pollutant	U.S. EPA Approved/Established
<i>North Coast Region</i>		
Albion River *	Sediment	December 2001
Big River *	Sediment	December 2001
Lower Eel River *	Temperature & Sediment	December 18, 2007
Middle Fork Eel River *	Temperature & Sediment	December 2003
South Fork Eel River *	Sediment & Temperature	December 16, 1999
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) *	Sediment & Temperature	December 29, 2004
Garcia River	Sediment	March 16, 1998
Gualala River *	Sediment	November 29, 2004
Klamath River	Temperature, Dissolved Oxygen, Nutrient, & Microcystin	December 28, 2010
Lost River	Nitrogen and Biochemical Oxygen Demand	December 30, 2008
Mad River *	Sediment & Turbidity	December 21, 2007
Navarro River *	Temperature & Sediment	December 27, 2000
Noyo River *	Sediment	December 16, 1999
Redwood Creek *	Sediment	December 30, 1998
Scott River	Sediment and Temperature	August 11, 2006
Shasta River	Dissolved Oxygen & Temperature	January 26, 2007
Ten Mile River *	Sediment	December 2000

Water Body	Pollutant	U.S. EPA Approved/Established
Trinity River *	Sediment	December 20, 2001
South Fork Trinity River and Hayfork Creek *	Sediment	December 1998
Van Duzen River & Yager Creek *	Sediment	December 16, 1999
<i>San Francisco Bay Region</i>		
Napa River	Sediment	January 20, 2011
Richardson Bay	Pathogens	December 18, 2009
San Francisco Bay	PCBs	March 29, 2010
San Francisco Bay	Mercury	February 12, 2008
San Pedro and Pacifica State Beach	Bacteria	August 1, 2013
San Francisco Bay Urban Creeks	Diazinon & Pesticide-Related Toxicity	May 16, 2007
Sonoma Creek	Sediment	September 8, 2010
<i>Central Coast Region</i>		
San Lorenzo River (includes Carbonera Lompico, Shingle Mill Creeks)	Sediment	February 19, 2004
Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)	Sediment	January 20, 2004
<i>Los Angeles Region</i>		
Ballona Creek	Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	December 22, 2005 and reaffirmed on October 29, 2008
Ballona Creek	Trash	August 1, 2002 and February 8, 2005
Ballona Creek Estuary	Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, and Total PAHs)	December 22, 2005
Ballona Creek, Ballona Estuary and Sepulveda Channel	Bacteria	March 26, 2007
Ballona Creek Wetlands *	Sediment and Invasive Exotic Vegetation	March 26, 2012
Calleguas Creek and its Tributaries and Mugu	Metals and Selenium	March 26, 2007

Water Body	Pollutant	U.S. EPA Approved/Established
Lagoon		
Calleguas Creek its Tributaries and Mugu Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation	March 14, 2006
Colorado Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, Sediment Toxicity, Polycyclic Aromatic Hydrocarbons, and Metals	June 14, 2011
Dominguez Channel, Greater Los Angeles and Long Beach Harbor Waters	Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs	March 23, 2012
Legg Lake	Trash	February 27, 2008
Long Beach City Beaches and Los Angeles & Long Beach Harbor Waters *	Indicator Bacteria	March 26, 2012
Los Angeles Area (Echo Park Lake) *	Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Lake Sherwood) *	Mercury	March 26, 2012
Los Angeles Area (North, Center, and Legg Lakes) *	Nitrogen and Phosphorus	March 26, 2012
Los Angeles Area (Peck Road Park Lake) *	Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Puddingstone Reservoir) *	Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin	March 26, 2012
Los Angeles River and Tributaries	Metals	December 22, 2005 and October 29, 2008 & Reopened and Modified on November 3, 2011
Los Angeles River	Trash	July 24, 2008
Los Angeles River Watershed	Bacteria	March 23, 2012
Los Cerritos *	Metals	March 17, 2010
Machado Lake	Pesticides and Polychlorinated Biphenyls	March 20, 2012
Machado Lake	Trash	February 27, 2008

Water Body	Pollutant	U.S. EPA Approved/Established
Machado Lake	Eutrophic, Algae, Ammonia, and Odors (Nutrient)	March 11, 2009
Malibu Creek Watershed	Bacteria	January 10, 2006, Revised November 8, 2013**
Malibu Creek and Lagoon *	Sedimentation and Nutrients to Address Benthic Community Impairments	July 2, 2013
Malibu Creek Watershed	Trash	June 26, 2009
Marina del Rey Harbor	Toxic Pollutants	March 16, 2006
Marina del Rey, Harbor Back Basins, Mothers' Beach	Bacteria	March 18, 2004, Revised November 7, 2013**
Revolon Slough and Beardsley Wash	Trash	August 1, 2002 and February 8, 2005
San Gabriel River *	Metals (Cu, Pb, & Zn) and Selenium	March 26, 2007
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	Coliform	January 13, 2012
Santa Clara River Reach 3 *	Chloride	June 18, 2003
Santa Monica Bay *	DDTs and PCBs	March 26, 2012
Santa Monica Bay Nearshore & Offshore	Debris (trash & plastic pellets)	March 20, 2012
Santa Monica Bay Beaches	Bacteria	June 19, 2003, Revised November 7, 2013**
Upper Santa Clara River	Chloride	April 6, 2010
Ventura River Estuary	Trash	February 27, 2008
Ventura River and its Tributaries	Algae, Eutrophic Conditions, and Nutrients	June 28, 2013
Central Valley Region		
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	Mercury	February 7, 2007
Clear Lake	Nutrients	September 21, 2007
Sacramento – San Joaquin Delta	Methylmercury	October 20, 2011
Lahontan Region		

Water Body	Pollutant	U.S. EPA Approved/Established
Lake Tahoe	Sediment and Nutrients	August 16, 2011
Truckee River	Sediment	September 16, 2009
<i>Colorado River Region</i>		
Coachella Valley Storm Water Channel	Bacterial Indicators	April 27, 2012
<i>Santa Ana Region</i>		
Big Bear Lake	Nutrients for Hydrological Conditions	September 25, 2007
Lake Elsinore and Canyon Lake	Nutrients	September 30, 2005
Rhine Channel Area of the Lower Newport Bay *	Chromium and Mercury	June 14, 2002
San Diego Creek and New Port Bay, including the Rhine Channel *	Metals (Cadmium, Copper, Lead, & Zinc)	June 14, 2002
San Diego Creek and Upper Newport *	Cadmium	June 14, 2002
San Diego Creek Watershed	Organochlorine Compounds (DDT, Chlordane, PCBs, and Toxaphene)	November 12, 2013
Upper & Lower Newport Bay	Organochlorine Compounds (DDT, Chlordane, & PCBs)	November 12, 2013
<i>San Diego Region</i>		
Chollas Creek	Diazinon	November 3, 2003
Chollas Creek	Dissolved Copper, Lead, and Zinc	December 18, 2008
Rainbow Creek	Total Nitrogen and Total Phosphorus	March 22, 2006
Project 1 – Revised Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek)	Indicator Bacteria	June 22, 2011
* U.S. EPA Established TMDL		
** OAL Approved, U.S. EPA Approval Pending		

The TMDL-based requirements of this Order are not limited to the maximum extent practical (MEP) standard. The TMDL-based requirements have been imposed in accordance with 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B). Pursuant to 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B), the effluent limitations for NPDES permits must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA, or established by EPA. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement

any relevant water quality control plans (basin plans), including TMDL requirements that have been incorporated into the basin plans.

Effluent limitations for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs). (See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3).) Where effluent limitations are expressed as BMPs, there should be adequate demonstration in the administrative record of the permit, including in the Fact Sheet, that the BMPs will be sufficient to comply with the WLAs.²⁰ (See 40 C.F.R. §§ 124.8, 124.9 & 124.18.) The NPDES permit must also specify the monitoring necessary to determine compliance with permit limitations. (See 40 C.F.R. § 122.44(i).) Where effluent limitations are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data). The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.²¹

As detailed below, this Order establishes BMP-based requirements for TMDL implementation that are consistent with the requirements and assumptions of the relevant WLAs. This Order further requires implemented BMPs to be monitored for effectiveness and to be adaptively managed for modifications as necessary to achieve WLAs.

Overview

The State Water Board and Regional Water Boards have reviewed the WLAs, implementation requirements, and monitoring requirements specified in the adopted and approved Regional Water Board Basin Plans or in U.S. EPA-established TMDLs applicable to the Department. In most of the relevant TMDLs, the Department's contribution to impairment is a small portion of the overall contribution from multiple sources (less than five percent). While the Department is generally a small contributor to impairment, the statewide reach of its highway system means that it is a contributor in numerous impaired watersheds. The Department must comply with applicable TMDLs across the state.

The fact that one discharger – the Department – must implement requirements for over 84 TMDLs administered by nine Regional Water Boards poses a unique challenge in permitting. Many of the TMDLs are designed to address the same pollutants causing impairment, and progress in achievement of the WLA for these pollutant categories requires implementation of similar control measures coupled with monitoring and adaptive management. In past

²⁰ Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,” Memorandum, U.S. EPA, November 22, 2002. On November 12, 2010, U.S. EPA issued a revision to the November 22, 2002, memorandum, recommending that “where the TMDL includes WLAs for storm water sources that provide numeric pollutant load or numeric surrogate pollutant parameter objectives, the WLA should, where feasible, be translated into numeric WQBELs in the applicable storm water permits.” The revision further stated, however, that the permitting authority’s decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit.

²¹ *Ibid.*

regulatory actions, however, the Department has been directed to comply with the TMDL requirements by reference to the sections of the relevant basin plan and through coordination with the relevant Regional Water Board. As a result, the Department has devoted significant effort to coordination and exercises to determine the next steps, with limited progress in installing on-the-ground control measures to achieve actual water quality improvements. This Order provides a focused and streamlined process for TMDL compliance so that the Department may proceed as quickly as possible to installation of control measures and monitoring, and adaptive management of those control measures to result in water quality improvements. The Order's TMDL requirements provide consistency in determining compliance requirements, where appropriate. To allow for consistency, with resulting time and cost-efficiency, in achieving compliance with the TMDL requirements applicable to the Department, the State Water Board has developed a set of pollutant category requirements to be implemented by the Department.

The pollutant categories are as follows:

1. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDLs
2. Metals/Toxics/Pesticides TMDLs
3. Trash TMDLs
4. Bacteria TMDLs
5. Diazinon TMDLs
6. Selenium TMDLs
7. Temperature TMDLs
8. Chloride TMDLs

Table IV.2 of Attachment IV of this Order lists all TMDLs applicable to the Department. For each TMDL, Table IV.2 cross-references one or more pollutant category. The Department must implement the cross-referenced pollutant category requirements to achieve compliance with the TMDL provisions of the Order. Where TMDL-specific, rather than, or in addition to, pollutant category-specific permit requirements are appropriate (because of the unique local conditions or specific requirements in the TMDL), those requirements are also noted in Table IV.2. In addition, Table IV.2 cross-references the monitoring, reporting and adaptive management requirements applicable to all pollutant categories.

Attachment IV of this Order recognizes that, because the Department must comply with numerous TMDLs, the Department must phase in implementation requirements for TMDLs over several years. To achieve the highest water quality benefit as quickly as feasible in the permit term, this phase-in must be accomplished in a manner that addresses discharges with the highest impact on water quality first. Accordingly, Attachment IV requires the Department, by October 1, 2014, to prepare and submit an inventory of all impaired reaches subject to TMDLs to which the Department discharges with prioritized implementation of controls for these reaches based on a set of qualitative criteria. In preparing the initial prioritization, the Department must consider the degree of impairment of the water body, measured by the percent pollution reduction needed to achieve the WLA, the contributing drainage area from the Department's right of way (ROW) relative to the watershed draining to the reach, and the relative proximity of the ROW to the receiving water.

The State Water Board will allow a 30-day public comment period on the Department's initial prioritization and will work with the Department and the Regional Water Boards to compile a final prioritization to be approved by the State Water Board Executive Director. Criteria for final prioritization to be considered by the Department, the State Water Board and Regional Water Boards include:

- a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS.
- b. Multiple TMDLs that can be addressed by a single BMP within a reach.
- c. TMDL deadlines specified in a Basin Plan.
- d. Regional Water Board and State Water Board priorities.
- e. Accessibility for construction and/or maintenance (i.e. safety considerations).
- f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

In finalizing the prioritization, the State Water Board and Regional Water Boards will consider the compliance date for attainment of the WLAs established in the Basin Plans and may adjust the prioritization accordingly. It is the intent of the State Water Board to have the Department meet listed TMDL deadlines where feasible.

Upon State Water Board Executive Director approval of final prioritization, the Department must implement control measures to achieve 1650 Compliance Units (CUs) per year. One CU is equivalent to one acre of the Department's ROW, from which the runoff is retained, treated, or otherwise controlled prior to discharge to the relevant reach. BMPs installed during construction activities in TMDL watersheds may receive CU credit for that portion of the treatment volume that exceeds the baseline treatment control requirements specified in the Order. A CU may be claimed when the BMP retrofit project enters the Project Initiation Document (PID) phase of implementation per the requirements of the Order. If a BMP retrofit project is not completed within the approved time schedule, the CU(s) will be revoked unless the Executive Director approves a delay.

The determination of the number of CUs the Department must complete each year is based on the objective of addressing every TMDL in Attachment IV within 20 years. A primary factor considered in the determination of the number of CUs to be completed each year is the compliance due date for the final WLA for many of the relevant TMDLs. The State Water Board considered two approaches in determining the annual number of CUs.

The first approach is based on a simple calculation of the number of acres of ROW that must be treated to ensure that all TMDL watersheds are addressed over a 20 year time frame. Data submitted by the Department indicate that there are 68,000 acres of ROW within TMDL watersheds.

It is not possible or necessary to treat 100 percent of the runoff from TMDL watersheds. In evaluating monitoring sites for discharges into ASBS, staff found that approximately 64

percent of the sites considered could not be addressed, either due to access limitations or safety considerations. Similar conditions are expected to exist in TMDL watersheds, although the percentage will not be as high because the terrain found along most of California's coastline is more difficult and rugged than the terrain that typically exists in the rest of the state. Accordingly, for purposes of this calculation based on the Department's preliminary estimates, the percentage of inaccessible/unsafe sites is reduced by one-half for TMDL watersheds, or 32 percent, translating into approximately 22,000 fewer acres ($68,000 \times 32 \text{ percent} = 22,000$) that must be treated. Therefore, the Department will have to address approximately 46,000 acres of ROW to comply with the TMDL requirements of Attachment IV. With the objective of addressing all TMDLs in Attachment IV within 20 years, the Department must treat or otherwise address 2300 acres per year ($46,000/20 = 2300$) throughout the state within the TMDL watersheds listed in Attachment IV.

The second approach for determination of CUs considered by the State Water Board is based on the Department's updated estimates of ROWs that must be treated. This proposal provided by the Department segregates the TMDLs into eight pollutant categories, similar to those presented in Attachment IV, including sediments, metals, trash and bacteria. The Department proposed annual CU commitments based upon the individual categories, with 600 CUs for sediments, a combined 710 CUs for metals and trash, and 340 CUs for bacteria, for an annual total of 1650 CUs. The proposal does not include other pollutant categories in which the acreage and controls for sediments, metals, trash, and bacteria would overlap with the acreage and controls for these other pollutants. This overlap of coverage was identified for the above categorical annual commitments so that the total ROW acreage requiring treatment equates to 33,000 acres.

Though the two approaches produce similar results, the State Water Board confirms that the second approach is sufficient for TMDL-implementation planning at the current stage of TMDL implementation; therefore the second compliance unit determination approach described above is implemented in this Order. The State Water Board believes that 1650 CUs represent a reasonable balance of resources and environmental protection, and will be sufficient to address the TMDLs in Attachment IV in the foreseeable future. The Department is ultimately responsible for demonstrating that it has complied with the TMDLs in Attachment IV by meeting the WLAs and other TMDL performance criteria, independent of its annual obligation to receive credit for compliance units. 1650 CUs per year may be more or less than is needed to comply with the TMDLs in Attachment IV within 20 years. This permit expires in 2018; therefore Attachment IV of this Order requires the Department to present to the State Water Board, at a public meeting to be scheduled approximately 180 days prior to the expiration of the Order, a TMDL Progress Report containing an evaluation of the progress achieved during this permit term. The State Water Board will then evaluate the compliance unit approach and the Department's progress in meeting the 20 year objective before consideration of subsequent requirements in a subsequently renewed permit.

Using an average cost \$176,000 per BMP/acre²², the proposed annual cost to meet this requirement relying solely on retrofits is approximately \$290,000,000. The Department's contribution to impairment in any given TMDL is generally a small portion of the overall contribution from multiple sources. In many cases, synergistic effects can be achieved and water quality improvements are better served through coordinated efforts with other parties to the TMDL. To encourage collaborative implementation, Attachment IV of this Order allows CUs for collaborative efforts based on the amount of financial participation made by the Department. To determine an appropriate financial equivalence staff used the cost data submitted by the Department of \$176,000 per BMP/acre or per CU. However, to encourage collaborative efforts, staff proposes a 50 percent discount for participation in these types of agreements. Attachment IV accordingly sets the CU equivalent at \$88,000. Based on the same approach described above, and relying solely on contributions to collaborative efforts, the annual cost to the Department is approximately \$145,000,000.

Attachment IV allows for two types of collaborative implementation: Cooperative Implementation Agreements between the Department and other responsible parties to conduct work to comply with a TMDL, and a Cooperative Implementation Grant Program funded by the Department and administered by the State Water Board. The grant program will be used to fund capital projects in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation will satisfy some or all of the Department's obligations under a TMDL, whether or not discharges from the Department's ROW are controlled or treated.

Cooperative implementation has the following advantages:

- Allows for retrofit projects off the ROW, at locations that may otherwise have space, access, or safety limitations within the ROW;
- Provides for the involvement of local watershed partners who have an interest and expertise in the best way to protect, manage, and enhance water quality in the watershed;
- Allows for implementation of BMPs and other creative solutions not typically available to the Department;
- Allows for larger watershed scale projects; and
- Leverages resources from other entities.

In addition, the Cooperative Implementation Grant Program eliminates the Department's complex budgeting and project approval process to expedite the implementation of BMPs in impaired watersheds.

If the Department elects to fund a Cooperative Implementation Grant Program, the Department and the State Water Board will enter into a formal agreement to specify the terms of the grant program and the commitments and responsibilities of the parties. The agreement will specify the following:

²² Construction capital cost based on information provided by Department staff.

- The Department will pay all State Water Board costs in administering the grant program. No credit for compliance units will be given for administrative costs paid to the State Water Board.
- The Department will track and report on the projects funded under the grant program.
- Grantees will be responsible for the long term management, operation, and maintenance of BMPs.
- Grants are limited to other responsible parties named in the TMDL.
- Projects shall address storm water runoff and treat or control the same Pollutants of Concern that the Department is responsible for.
- Priority is given to projects that address impairments in the highest priority reaches identified in the prioritization process specified in Attachment IV, Section I.A.
- If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked and added to subsequent annual compliance unit totals.

Attachment IV reflects the State Water Board's commitment to streamlining TMDL compliance for the Department to proceed as quickly as feasible to implement on-the-ground control measures and obtain measurable improvement in water quality. In the prioritization process, the Department and the Water Boards will consider the final compliance deadlines under the TMDLs; however, the State Water Board recognizes that the requirements in Attachment IV do not mirror all specific interim deadlines for studies, reports, and pollutant reductions in the TMDLs included to demonstrate progress toward meeting the WLAs. The requirements in Attachment IV are general yet consistent with specific planning, study, and reporting requirements in the TMDLs.

The Department is required annually to include in the TMDL Status Review Report its proposal for reaches to be addressed in the upcoming year, with selected control measures and projected schedule for implementation. The Department is also required to report a set of information that encompasses updates on cooperative and individual implementation activities completed, as well as an analysis of the effectiveness of existing BMPs and activities in meeting the WLAs. This information will be reviewed by the State Water Board and will be publicly available. Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director, or designee.

Attachment IV does not list the final required WLAs for each TMDL. With few exceptions, the WLAs are to be achieved jointly by a number of storm water dischargers and accordingly are of limited use in determining and enforcing the Department's specific responsibilities under the TMDL. The State Water Board finds that effective implementation and enforcement of Attachment IV is better achieved through clear requirements for implementation of controls, and monitoring and adaptive management of such controls, than by implementation of joint WLAs into the permit requirements.

Nevertheless, the WLAs, both Department-specific and joint with other dischargers, are discussed in the sections below. While the WLAs are not incorporated into Attachment IV as permit requirements, the discussion establishes that Attachment IV is consistent with the

requirements and assumptions of the WLAs. In general, the Department is a relatively small contributor to the impairment to be addressed by the relevant TMDLs.²³ Attachment IV requires a focused effort to address the priority discharges through measurable and streamlined progress in implementation of controls, effectively addressing the relatively small contribution from the Department. The Department must verify progress through reporting of subsequent monitoring and adaptive management activities.

As an additional step in determining compliance toward achievement of WLAs, the Department must submit a TMDL Progress Report with its application for permit reissuance in January of 2018, analyzing the effectiveness of the control measures installed for each reach and whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final TMDL compliance deadlines. The TMDL Progress Report will be subject to public review and comment and will inform the State Water Board as it considers subsequent requirements in a subsequently reissued permit.

A. General Requirements for all TMDLs: Comprehensive TMDL Monitoring, Reporting, and Adaptive Management

As previously discussed, an NPDES permit must specify the monitoring necessary to determine compliance with effluent limitations. Where effluent limitations are specified as BMPs, the permit should specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved. The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance. Attachment IV requires continuation of existing monitoring plans as approved by the Regional Water Board Executive Officer. Where there is no approved monitoring plan in place for a TMDL, the Department is required to submit a plan to the State Water Board by January 1, 2015, with a time schedule to implement the plan. The submitted plan must be designed to assess the effectiveness of implemented BMPs and to inform BMP selection. The Department shall use the monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs and shall use the assessment to inform modifications to control measures to achieve WLAs and other applicable performance standards.

BMP effectiveness monitoring and the adaptive management strategy related to BMP implementation allows for flexibility in source control methods until the most appropriate BMPs are identified and installed for the control of a pollutant. The Department will evaluate the effectiveness of the controls that were implemented each year and submit the results of the evaluation in the TMDL Status Review Report, which is submitted as part of the Annual Report. If the controls implemented are shown to be ineffective, then the Department must either re-design the BMP or implement a new type of control measure to address the inadequacies of the current design. The process of assessing the performance and

²³ In the few instances where the Department's contribution is a relatively high percentage of the total contribution from identified sources, as identified in this Fact Sheet, the State Water Board would expect the Department to prioritize addressing such discharges and evaluating the performance and effectiveness of the selected BMPs.

effectiveness of BMPs and using that assessment to modify or replace inadequate BMPs ensures that the Department will make progress toward achieving the requirements of the TMDLs within the permit term.

The Department must also prepare and submit a TMDL Progress Report to the State Water Board as part of its permit reissuance application. That report must include: (1) a summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of BMP effectiveness assessment, (2) a determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines, (3) where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants, and (4) a summary of the estimated amount of pollutants that were prevented from entering into the receiving waters. The TMDL Progress Report will be subject to public review and comment and will inform the requirements of the reissued permit.

B. Sediments/Nutrients/Mercury/Siltation/Turbidity Pollutant Category

General Description of Pollutant Category

The TMDLs in this pollutant category identify sediment from roads as a significant or primary source of these pollutants. Excessive sediment loads have resulted in the non-attainment of water quality objectives for sediment, suspended material, and settleable material. Excess sediment delivery to stream channels is associated with several natural processes as well as anthropogenic sources.

Sources of Pollutant and How Pollutants Enters the Waterway

Natural sources include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Mercury is negatively impacting the beneficial uses of many waters of the state. As of 2010, more than 180 water bodies are designated as impaired by mercury, and fish in these waters can have mercury concentrations that pose a health risk for humans and wildlife that eat the fish, including threatened and endangered species. The beneficial uses impacted by

mercury include, but may not be limited to, COMM, WILD, and RARE beneficial uses. Also REC-1 has been used for many waters to indicate fish consumption as part of fishing. Sources of mercury include gold and mercury mines, naturally mercury enriched soils, atmospheric deposition, improper disposal of mercury containing items, such as batteries and dental amalgam. Mercury from many of these sources can end up in storm water and industrial and municipal wastewater.

Watershed Contribution

The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas and therefore, addressing the problem at the appropriate level for the Sediment, Nutrients, Mercury, Siltation and Turbidity TMDLs.

Control Measures

Attachment IV requires the Department to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

In addition to TMDL requirements, the Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes implementation, maintenance and evaluation of BMPs, and the investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to achieve the applicable standards. Erosion control BMPs are typically used on construction sites, although some are also used as permanent, post-construction BMPs.

Department's Contribution

The Department's discharge contribution is discussed under the individual TMDLs below. The TMDLs in this pollutant category attribute most anthropogenic sediment related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities routinely include extensive construction and maintenance of unpaved roads which range over large areas, whereas the Department maintains a network of paved highways which account for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

The requirements in Attachment IV are generally sufficient to address the sediment TMDLs that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

NORTH COAST REGION SEDIMENT TMDLS

As discussed under individual TMDLs below, the TMDLs in this pollutant category attribute most anthropogenic sediment-related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities in the North Coast region routinely include extensive construction and maintenance of unpaved roads which range over large areas of the Coast Range's vertical topography, whereas the Department maintains a network of paved highways which accounts for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

WLAS

The North Coast Regional Water Board has adopted the "Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region" on November 29, 2004. The goals of the Policy are to control sediment waste discharges to impaired water bodies so that the TMDLs are met, sediment water quality objectives are attained, and beneficial uses are no longer adversely affected by sediment. This policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards.

The sediment control requirements in Attachment IV (TMDL Requirements) of this Order are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges. The North Coast Regional Water Board's basin plan has the following narrative water quality objectives which apply to sediment-related discharges to receiving waterbodies:

Parameter	Water Quality Objectives
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affects beneficial uses.
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface water shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Department's Contribution:

The Department's specific discharge contribution is discussed under the individual TMDLs below.

Albion River Sediment TMDL, December 2001

Final WLA

U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed.

Final WLA Specific to the Department

U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed. As a consequence, its wasteload allocation is set to zero.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

Approximately five percent of the total miles of roads within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department's paved roadways thus constitute some undetermined fraction of the total paved road mileage: its wasteload allocation is set to zero.

Big River Sediment TMDL, December 2001

Final WLA

U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed, so the wasteload allocation is zero.

Final WLA Specific to the Department

U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

Approximately three (3) percent of the miles of roadways within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department is not listed as a source of point source discharges of sediment.

Lower Eel River Sediment & Temperature TMDL, December 18, 2007

Final Sediment WLA

For the Department’s facilities, construction sites, and municipalities, the wasteload allocation is expressed as equivalent to the load allocations, as specified in the following table:

Sediment Source		Average Daily		Average Daily		Percent Reduction 1955 -2003
		1955 – 2003 Loading	Load Allocation	1955 – 2003 Loading	Load Allocation	
		(tons/mi ² /yr)	(tons/mi ² /yr)	(tons/mi ² /day)	(tons/mi ² /day)	
Natural Load Allocation		718	718	2.0	2.0	0%
Roads	Episodic	43	9	0.1	0.02	80%
	Chronic	115	17	0.3	0.05	85%
Timber Harvest		590	147	1.6	0.4	75%
Skid Trail		7	1	0.02	0.5	90%
Bank Erosion		21	6	0.1	0.03	70%
Total Human-related Load Allocation		775	180	2.1	0.5	77%
Total Load Allocations Natural and Human-Related Sources		1,493	898	4.1	2.5	

Final WLA Specific to the Department

As stated above, U.S. EPA’s wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Deadlines

As noted above, U.S. EPA did not set a specific sediment WLA for the Department.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative sediment contribution is not known.

Eel River (Middle-Fork) Eden Valley and Round Valley HSAs Temperature and Sediment TMDL, December 2003

Final Sediment WLA

U.S. EPA states that because discharge from point sources cannot be readily determined, and because possible loading from point sources is not distinguished from general management-related loading in the source analysis, U.S. EPA considers the rates set as load allocations (i.e., for nonpoint sources) to also represent wasteload allocations (i.e., for those point sources that would be covered by general NPDES permits).

Table 7: Sediment TMDLs and Allocation (t/m²/yr)

Source	Black Butte	Elk Creek	Round Valley	Upper MF	Williams Thatcher	BASINWIDE Load
TOTAL Natural	724	1,059	374	410	417	574
Percent Reduction over current	0%	0%	0%	0%	0%	0%
Subtotals Landslides	9	12	10	2	2	6
Percent Reduction over current	0%	5%	5%	0%	5%	5%
Subtotal Small Management Sources	7	41	9	8	19	23
Percent Reduction over current	0%	32%	95%	0%	89%	70%
Total Management-Related	16	53	19	10	21	29
Percent Reduction over current	0%	27%	91%	0%	88%	65%
TMDL – ALL SOURCES	740	1,112	393	420	438	603
Percent Reduction over current	0%	2%	32%	0%	26%	8%
Percent Natural	98%	95%	95%	98%	95%	95%
Percent Management	2%	5%	5%	2%	5%	5%

Final Sediment WLA Specific to the Department

As discussed above, U.S. EPA did not assign a specific sediment WLA to the Department.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA states that the Department's discharges of sediment, like other point sources of anthropogenic sediment discharges in this TMDL, are comparatively minor sources of this pollutant.

South Fork Eel River Temperature & Sediment TMDL, December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Sediment WLA

U.S. EPA set the wasteload allocation to zero because it found that there are no point sources of sediment in this watershed.

Final Sediment WLA Specific to the Department

As stated above, U.S. EPA states that there are no point source discharges of sediment within this TMDL, so the Department's wasteload allocation is set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA states that there are no discharges from point sources within this TMDL, and because of this finding, the Department's potential contribution to anthropogenic sediment loading is insignificant.

Upper Main Eel River Temperature & Sediment TMDL, December 29, 2004

Final Sediment WLA

For the sediment TMDL, U.S. EPA states that point sources are not significant, and sets the waste load allocation to zero.

Final Sediment WLA Specific to the Department

U.S. EPA views point source contributions to sediment loading in this TMDL, so the Department's wasteload allocation is set to zero.

Final Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

U.S. EPA considers all point sources of anthropogenic sediment loading to be insignificant for purposes of this TMDL.

Garcia River Sediment & Temperature TMDL, March 16, 1998**Final Sediment WLA**

The wasteload allocation is effectively set to zero for "controllable" anthropogenic discharges of sediment, including those associated with roads, since all controllable discharges of sediment from roadways are prohibited.

Final Sediment WLA Specific to the Department

Although not specifically included in this TMDL, the wasteload allocation for all "controllable" anthropogenic discharges of sediment from roadways is effectively set to zero.

Final Sediment Deadlines

The structure of this 2002 TMDL requires responsible parties to choose an option for controlling 'sediment delivery', and some 'due dates' have already passed, e.g., January 2005 was the deadline for the Long Term Road System Plan- it is unclear which option, if any, has been selected by the Department.

Department's Sediment Contribution (relative contribution to pollutant loading)

The Department's relative sediment pollutant loading is not known.

Gualala River Sediment & Temperature TMDL, November 29, 2004**Final Sediment WLA**

U.S. EPA set the wasteload allocation for sediment discharges to zero, noting that point sources of sediment pollution are insignificant within the area described in this TMDL.

Final Sediment WLA Specific to the Department

There is no wasteload allocation specifically assigned to the Department, but as mentioned above, U.S. EPA set these to zero because of their comparative insignificance as sources.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)

Approximately three percent of the miles of roadways included within this TMDL are paved. The Department's potential contribution to pollutant loading is some unspecified fraction of the former, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. Due to its relative insignificance as a source of sediment pollution the Department's wasteload allocation is set to zero.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010
Final Nutrients WLA

Daily mass-based nutrient (total phosphorus and total nitrogen) and organic matter load allocations are assigned to segments of the Klamath River and its tributaries.

Source Area	Daily TP Load Allocations (lbs/day)	Daily TN Load Allocations (lbs/day)
Stateline	245+	3,139+
Upstream of Copco 1 Reservoir	(61)+	(330)+
Stateline to Iron Gate Dam inputs	22+	339+
Δ Iron Gate Hatchery	0+	0+
Tributaries between Iron Gate Dam and the Shasta River	49+	317+
Shasta River	75+	220+
Tributaries between Shasta River and Scott River	17+	97+
Scott River	87+	1,279+
Tributaries between Scott River and Salmon River	187+	1,050+
Salmon River	193+	1,583+
Tributaries between Salmon River and Trinity River	90+	504+
Trinity River	762+	5,783+
Tributaries between Trinity River and Turwar Creek	179+	1,004+
Total Maximum Daily Load	1,845	14,985

Final Nutrients WLA Specific to the Department

There are no WLAs that are assigned specifically to the Department. The Department is expected to address nutrient inputs into the Klamath River watershed through control of sediment from its road and highway facilities.

Final Nutrients Deadlines

There are no final deadlines for achievement of WLAs. However, the Department shall submit annual reports to the North Coast Regional Water Board documenting progress in implementing.

Department's Nutrients Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the nutrient pollutant loading is not known.

Lost River Nitrogen Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments December 30, 2008

The Lower Lost River TMDL was developed by the North Coast Regional Water Quality Control Board and approved by U.S. Environmental Protection Agency (U.S. EPA) (regional board resolution number R1-2010-0026). It established TMDLs for Nitrogen and Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments. The Lower Lost River TMDLs implementation plan which was established by U.S. EPA is included in the Klamath River TMDL. Both the Klamath River TMDL and the Lower Lost River TMDL were both approved on December 28, 2010.

Final Nitrogen WLAs

Segment	Total Dissolved Inorganic Nitrogen WLA (average kg/day)	Total Carbonaceous Biochemical Oxygen Demand (CBOD) (average kg/day)
Lost River from Border of Tule Lake Refuge	79.5	197.0
Tule Lake Refuge TMDLs	181.5	90.10
Lower Klamath Refuge TMDLs	76.2	889.9

Final Nitrogen WLAs Specific to the Department

Segment	Dissolved inorganic nitrogen, (average kg/day)	Carbonaceous Biochemical Oxygen Demand (CBOD) (average kg/day)
Lost River from border of Tule Lake Refuge	0.3	0.5
Tule Lake Refuge TMDLs	0.3	0.5
Lower Klamath Refuge TMDLs	0.3	0.5

Final Nitrogen Deadlines

There are no deadlines associated with these TMDLs.

Department's Nitrogen Contribution (relative contribution to pollutant loading)

Segment	Percentage of Total Dissolved Inorganic Nitrogen WLA	Percentage of Total Carbonaceous Biochemical Oxygen Demand (CBOD) WLA
Lost River from border of Tule Lake Refuge	100	100
Tule Lake Refuge TMDLs	3.0	10.1
Lower Klamath Refuge TMDLs	100	100

Mad River Sediment and Turbidity TMDL, December 21, 2007

U.S. EPA states that almost all sources of sediment in the Mad River watershed are from diffuse, nonpoint sources, including runoff from roads, timber operations, and natural background. In the Mad River basin, individual point sources are negligible sources of sediment and suspended sediment. To ensure protection of the cold water beneficial use, EPA has determined that it is appropriate to consider the rates set forth in these TMDLs as load allocations to also represent wasteload allocations for the *diffuse* discharges in the watershed that are subject to NPDES permits, as discussed below.

Final WLAs for Sediment and Turbidity

Wasteload allocations for diffuse, permitted point sources function similarly to and are represented by the nonpoint source load allocations, and wasteload allocations for permitted point sources are provided concentration-based wasteload allocations equivalent to what is included in the permits in order to account for incidental sediment and suspended sediment discharges. The TMDLs for sediment and turbidity include separate but identical load allocations for nonpoint sources and wasteload allocations for the diffuse point sources for each subarea. These WLAs are equivalent to and represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi²/year); therefore, they are not added to the LAs in the TMDL equation.

Table 20. Total Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source	Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Natural Load Allocation	894	894	2.4	2.4	0%
Roads	Landslides	1,298			
	Surface	242			
Roads Subtotal	1,540	174	4.2	0.5	89%
Harvest	Landslide	38			
	Surface	2			

Sediment Source	Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Harvest Subtotal	40	5	0.1	0.01	89%
Total Human-related Load	1,580	179	4.3	0.5	89%
Total Load: All Sources	2,474	1,073	6.8	2.9	57%
Note: values have been rounded.					

Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21 (below). The reductions reflect similar priorities as for the total sediment load. Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21. The reductions reflect similar priorities as for the total sediment load.

Table 21. Suspended Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source		Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
		1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	1976 – 2006 Loading (tons/mi ² /yr)	Load Allocation (tons/mi ² /yr)	
Natural Load Allocation		809	809	2.2	2.2	0 %
Road	Landslides	1,174				
	Surface	219				
Roads Subtotal		1,393	158	3.8	0.4	89%
Harvest	Landslides	34				
	Surface	2				
Harvest Subtotal		36	4	0.1	0.01	89%
Total Human-related Load		1,430	162	3.9	0.4	89%
Total Load: All Sources		2,238	971	6.1	2.7	57%

Final WLAs for Sediment and Turbidity Specific to the Department

U.S. EPA grouped the Department’s discharges under its NPDES municipal storm water permit with other “diffuse” NPDES-permitted storm water discharges occurring in this TMDL. U.S. EPA’s source analysis did not distinguish between land areas subject to NPDES regulation and nonpoint sources of sediment and turbidity. U.S. EPA’s TMDLs thus include separate but identical load allocations (LAs) for nonpoint sources and wasteload allocations (WLAs) for the “diffuse” point sources for each subarea. These WLAs are equivalent to and

represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi²/year); therefore, they are not added to the LAs in the TMDL equation.

For the diffuse permitted sources such as the Department's discharges under its municipal storm water permit, the waste load allocation is expressed as equivalent to the load allocation for (all) roads. The load allocations for roads are listed in the tables given above.

U.S. EPA also states that the Regional Water Board may wish to refine these TMDLs and allocations further in the future.

Final Sediment and Turbidity Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Sediment and Turbidity Contribution

U.S. EPA states that non-NPDES nonpoint sources are responsible for nearly all sediment loading in the watershed, but does not estimate the Department's potential contribution to sediment and turbidity waste loading in this TMDL. Only six percent of the roads in this watershed are paved, and some unspecified portions of the latter are State highways.

Navarro River Sediment and Temperature TMDL, December 27, 2000

Final Sediment WLA

The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools, and to reduced wetted channel width/depth ratios.

Final Sediment WLA Specific to the Department

The Department is not specifically mentioned as a source of pollutant loading for temperature and sediment, nor are any other point sources of these pollutants. The wasteload allocation for the Department is therefore presumed to be set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution

As mentioned above, neither Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Noyo River Sediment TMDL, December 16, 1999

Final Sediment WLA

U.S. EPA apportioned the total load among several non-point sources of sediment, after accounting for background load. As a consequence, this TMDL does not include wasteload allocations for point sources.

Final Sediment WLA Specific to the Department

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution (relative to pollutant loading)

As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Redwood Creek Sediment TMDL, U.S. EPA Established December 30, 1998

Final Sediment WLA

U.S. EPA did not establish wasteload allocations for point sources in this TMDL.

Final WLA

U.S. EPA established this TMDL on December 30, 1998 and it became effective immediately.

Final WLA Specific to the Department and the Department's Contribution

As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Final Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Contribution (relative to pollutant loading)

The Department's contribution relative sediment pollutant loading is not known.

Scott River Sediment and Temperature TMDL, August 11, 2006

Final Sediment WLA

U.S. EPA states that there are no point sources of sediment and/or temperature related discharges within the area encompassed by this TMDL, so the wasteload allocation is set to zero.

Final Sediment WLA Specific to the Department

None.

Final Sediment Deadlines

U.S. EPA directed Regional Water Board staff to evaluate the Department's state-wide NPDES permit in the North Coast Region by September 8, 2008. The purpose of the evaluation was to determine the adequacy and effectiveness of the Department's storm water program in preventing and reducing elevated water temperatures in the North Coast Region, including the Scott River watershed.

Department's Sediment Contribution (relative to pollutant loading)

As noted above, U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero. The Department's point source contribution is therefore judged to be insignificant.

Ten Mile River Sediment TMDL, December 2000

Final Sediment WLA

U.S. EPA states that there are no point sources of sediment discharges within the area included within this TMDL: wasteload allocations are therefore set to zero.

Final Sediment WLA Specific to the Department

As stated above, U.S. EPA did not establish wasteload allocations for point sources such as the Department in this TMDL, so the wasteload allocations are set to zero.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution (relative pollutant loading)

The Department's relative sediment contribution is judged to be insignificant.

Trinity River Sediment TMDL, December 20, 2001

Final Sediment WLA

U.S. EPA did not subdivide waste load and load allocations into specific sources such as roads and timber harvest, unlike several of its other sediment-related TMDLs in Region 1. U.S. EPA divided the basin into subareas because of the wide range of sediment delivery rates within each of the several subareas. U.S. EPA further states that although nonpoint sources are responsible for most sediment loading in the watershed, point sources also discharge some sediment.

The TMDL identified wasteload allocations for point sources and load allocations for nonpoint sources as pollutant loading rates (tons/square mile/year) for subareas within the Trinity Basin. The source analysis supporting these allocations evaluated sediment loading at a subarea scale, and did not attempt to distinguish sediment loading at the scale of specific land ownership, nor did the source analysis specifically distinguish between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. As a

consequence, the TMDL includes separate but identical load allocations for nonpoint sources and wasteload allocations for point sources for each subarea. The joint LA/WLA's for each subarea are given in the following tables:

Table 5-2. TMDL and Allocations by Source Category for Upper Area

Source Categories		Subareas within the Upper Assessment Area				
		Reference Subwatersheds ¹	Westside Tributaries ²	Upper Trinity ³	East Fork Tributaries ⁴	East Side Tributaries ⁵
Current Sediment Delivery Rate						
Background (non-management)		1,125	421	2,759	258	241
Management	Roads	129	101	162	319	48
	Timber Harvest	240	31	1,084	46	22
	Legacy (Roads, Mining)	7	25	21	26	96
	Total Mgmt.	376	157	1,267	391	96
Total Sediment Delivery		1,051	578	4,026	649	337
Total as percent of background		133%	137%	146%	252%	140%
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)		1,406	526	3,449	323	301
Background Allocation		1,125	421	2,759	258	241
Total Management Allocation (= TMDL – Background)		281	105	690	65	60
Percent reduction needed in management to attain TMDL		25%	33%	46%	83%	37%
<ol style="list-style-type: none"> 1. Stuarts Fork, Swift Creek, Coffee Creek 2. Stuart Arm Area, Stoney Creek, Mule Creek, East Fork Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek; 3. Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstem Area, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowside Gulch Area, Scorpion Creek 4. East Fork Trinity, Cedar Creek, Squirrel Gulch Area 5. East Side Tributaries, Trinity Lake 						

Table 5.3 TMDL and Allocations by Source Category for Upper Middle Area

Source Categories	Subareas within the Upper Assessment Area						
	Weaver and Rush Creeks (72 mi ²)	Deadwood Creek, Hoadley Gulch and Poker Bar Area (47 mi ²)	Lewiston Lake Area (25 mi ²)	Grass Valley Creek ¹ (37 mi ²)	Indian Creek (34 mi ²)	Reading and Brown Creek (104 mi ²)	
Current Sediment Delivery Rates (tons/mi²/yr)							
Background (non-management)	675	273	195	175	324	263	
Management	Roads	144	220	83	287	1,570	125
	Timber Harvest	61	280	37	1,136	330	204
	Legacy (Roads, Mining)	81	62	69	65	68	42
	Total Mgmt.	286	562	189	1,488	1,968	372
Total Sediment Delivery	961	835	384	1,663	2,292	635	
Total as percent of background	142%	305%	197%	950%	707%	241%	
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)							
TMDL (= 1.25 X Background)	844	341	244	219	405	329	
Background Allocation	675	273	195	175	324	263	
Total Management Allocation (= TMDL – Background)	169	68	49	44	81	66	
Percent reduction needed in management to attain TMDL	41%	88%	74%	97%	96%	82%	
1. The rates in Grass Valley Creek do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds.							

Table 5.4 TMDL and Allocations by Source Category for Lower Middle Assessment Area

Source Categories	Subareas within the Lower Middle Assessment Area					
	Reference Subwatersheds ¹ (434 mi ²)	Canyon Creek (64 mi ²)	Upper Tributaries ² (72 mi ²)	Middle Tributaries ³ (54 mi ²)	Lower Tributaries ² (96 mi ²)	
Current Sediment Delivery Rates (tons/mi²/yr)						
Background (non-management)	1,568	1,302	268	210	221	
Management	Roads	11	2,482	60	37	41
	Timber Harvest	4	4	29	16	20
	Legacy (Roads, mining)	9	17	46	28	29
	Total Mgmt.	24	2,503	135	81	90
Total Sediment Delivery	1,592	3,805	403	291	311	
Total as percent of background	102%	292%	150%	139%	141%	
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)	1,592	1,628	335	263	276	
Background Allocation	1,568	1,302	268	210	221	
Total Management Allocation (= TMDL – Background)	24	326	67	53	55	
Percent reduction needed in management to attain TMDL	0	87%	50%	35%	39%	
1. New River, Big French, Manzanita, North Fork, East Fork North Fork. 2. Dutch, Soldier, Oregon Gulch, Conner Creek Area. 3. Big Bar Area, Prairie Creek, Little French Creek. 4. Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quinby Creek Area, Hawkins, Sharber.						

Table 5.5. TMDL and Allocations by Source Category for Lower Assessment Area

Source Categories	Subareas within the Lower Assessment Area. Outside of Hoopa Valley Tribe Reservation Boundaries					
	Reference Subwatersheds Horse Linto Creek: 64 mi ²)	Mill Creek and Tish Tang (39mi ²)	Willow Creek (43 mi ²)	Campbell Creek and Supply Creek (11 mi ²)	Lower Mainstem Area and Coon Creek (32mi ²)	
Current Sediment Delivery Rates (tons/mi²/yr)						
Background (non-management)	2,110	839	374	7,845	252	
Management	Roads	483	703	854	14,349	76
	Timber Harvest	87	83	201	785	15
	Legacy (Roads, Mining)	26	26	26	26	22
	Total Mgmt.	596	812	1,081	15,160	113
Total Sediment Delivery	2,706	1,651	1,455	23,005	365	
Total as percent of background	128%	197%	389%	293%	145%	
Loading Capacity (TMDL) and Allocations (tons/mi²/yr)						
TMDL (= 1.25 X Background)	2,638	1,049	468	9,806	315	
Background Allocation	2,110	839	374	7,845	245	
Total Management Allocation (= TMDL – Background)	528	210	94	1,961	63	
Percent reduction needed in management to attain TMDL	11%	74%	91%	87%	44%	
Note: Since Background rates for Lower Mainstem Area and Coon Creek were not available from GMA (2001), U.S. EPA used the same rate as was calculated for the Quinby Creek Area is comparable in size and underlain by the same geology type (Galice Formation).						

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Final Sediment WLA Specific to the Department

U.S. EPA issued joint LAs and WLA's, as noted above, so source-specific wasteload allocations were not developed for this TMDL.

Department's Sediment Contribution (relative pollutant loading)

It is not possible to estimate the Department's point source contribution from the source analysis developed by U.S. EPA.

South Fork Trinity River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1998)

Final Sediment WLA

U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department

There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Deadlines

No deadlines were specified.

Department's Pollutant Contribution

The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 36 and 101.

Van Duzen River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1999)

Final Sediment WLA

U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department

There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Sediment TMDL Deadlines

No deadlines were specified.

Department's Pollutant Contribution

The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 3, 36, and 299.

SAN FRANCISCO BAY REGION SEDIMENT AND MERCURY TMDLS

Napa River Sediment TMDL, January 20, 2011

Final Sediment WLA

The wasteload allocations are listed in the following table:

Point Source Category	Current Load		Reduction Needed (percentage)	Wasteload Allocations	
	Metric (Tons/year)	Percentage of Natural Background		Metric (Tons/year)	Percent of Natural Background
Construction Storm Water Order No. 99-08-DWQ	500	0.3	0	500	.03
Municipal Storm Water NPDES Permit No. CAS000001	800	0.5	0	800	0.5
Industrial Storm Water NPDES Permit No. CAS000001	500	0.3	0	500	0.3
Department Storm Water-Order No. 99-06-DWQ	600	0.4	0	600	0.4
Wastewater Treatment Plant Discharges^a					
City of St. Helena NPDES Permit No. CA0038016	30	<0.1	0	30	<0.1
Town of Yountville/CA Veteran's Home NPDES Permit No. CA0038121	30	<0.1	0	30	<0.1
City of Calistoga NPDES Permit No. CA0037966	40	<0.1	0	40	<0.1
TOTAL	2,500	2		2,500	2

a. For wastewater treatment plant discharges, compliance with existing permit effluent limit of 30 mg/L of TSS is consistent with these wasteload allocations.
Note: Above estimates for loads, percent reductions, and allocations are rounded to two significant figures.

Final Sediment WLA Specific to the Department

The Department's wasteload allocation is 600 metric tons/year.

Final Sediment Deadlines

The Department is deemed to be implementing appropriate control measures if it discharges in compliance with its municipal storm water permit, and if it conducts the monitoring program included in its storm water permit.

Department's Sediment Contribution (relative to pollutant loading)

The Regional Water Board indicates that the Department is a fairly minor anthropogenic source of sediment discharges, and attributes its current discharges to only 0.4% of natural background loading. As a consequence, the Regional Water Board has determined that compliance with its NPDES permit will enable the Department to meet its sediment wasteload allocation.

Sonoma Creek Sediment TMDL, September 8, 2010

Final WLA

Although roadways are cited as a major source of sediment loading in the Sonoma Creek watershed, the Regional Water Board has determined that compliance with its NPDES permit for storm water will enable the Department to meet its wasteload allocation for sediment.

Final Sediment WLA Specific to the Department

The Department's wasteload allocation is 100 tons/year, which is its current (2005) estimated annual discharge of sediment within the area encompassed by this TMDL.

Final Sediment Deadlines

In collaboration with stakeholders in the watershed, Water Board staff will develop a detailed monitoring program to assess progress of TMDL attainment and provide a basis for reviewing and revising TMDL elements or implementation actions. As an initial milestone, by fall 2011, the Regional Water Board and watershed partners were required to complete monitoring plans to evaluate: a) attainment of water quality targets; and b) suspended sediment and turbidity conditions. Initial data collection, based on the protocols established in these monitoring plans was anticipated to begin in the winter of 2011-2012.

Department's Sediment Contribution (relative to pollutant loading)

The Regional Water Board estimates that the Department's point source discharges of sediment constitute approximately 8% of total point sources discharges of sediment.

San Francisco Bay Mercury TMDL, February 12, 2008

The San Francisco Bay Mercury TMDL was adopted by the San Francisco Bay Regional Water Quality Control Board as Resolution Number R2-2006-0052 on August 9, 2006. It was approved by U.S. EPA on February 12, 2008.

Final Mercury WLA

There are no WLAs specific to the Department. Instead, the Department's WLA is an unspecified portion of the WLA assigned to the city or municipal NPDES permit in which the Department's roads or facilities reside.

Final Mercury WLA Specific to the Department

No deadlines specified.

Final Mercury Deadlines

The WLAs must be attained by February 12, 2028.

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's contribution is unknown.

CENTRAL COAST SEDIMENT TMDLS

Although roadways are cited as a major source of sediment loading in some Central Coast watersheds, the Central Coast Regional Water Board has determined that compliance with the Department's NPDES permit will meet the Department's wasteload allocation.

***San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks)
Sediment TMDL, February 19, 2004***

Final Sediment WLA

The sediment load to the San Lorenzo River derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
Upland Timber Harvest Plan (THP) Roads	0	419	362	25,215
Streamside THP Roads on Steep Slopes	0	182	164	10,949
Upland Public/ Private Roads	146	1,235	367	13,835
Streamside Public/Private Roads on Steep Slopes	77	135	239	6,178

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
THP Land	0	23	16	1,057
Other Urban and Rural Land	310	2,622	965	43,368
Mass Wasting	0	4,082	6,440	157,388
Channel/Bank Erosion	324	3,030	989	48,149
Total Allocation = TMDL³	857	11,728	9,542	306,139

Note:

³ The term "TMDL" is used here for familiarity. The allowable loads for the San Lorenzo River and its tributaries are actually expressed as a Total Annual Loads (tons/year). This expression of load accounts for seasonal variation in sediment loads explained by the seasonality of rainfall in this region of the Central Coast.

Final Sediment WLA Specific to the Department

As stated above, no specific waste load allocation was assigned to the Department.

Final Sediment Deadlines

Compliance with its municipal storm water permit is deemed to be sufficient to meet the Department's waste load allocation for sediment.

Department's Sediment Contribution (relative contribution to pollutant loading)

This TMDL does not estimate the relative contribution of the Department's roadways/facilities to sediment discharges, but this source appears to be moderate based on this TMDL's source analysis.

Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary) Sediment TMDL, January 20, 2004

Final WLA

The sediment load to Morro Bay, Los Osos Creek and Chorro Creek derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Final Sediment WLA Specific to the Department

Loading Allocations (TMDL expressed as annual load)	Watershed	Total (Tons/Yr) Rounded to the nearest ton
	Chorro Creek at Reservoir	6,541
	Dairy Creek	440
	Pennington Creek	966
	San Luisito Creek	7,315
	San Bernardo Creek	10,269
	Minor Tributaries	4,489
	Chorro Creek (Subtotal)	30,020
	Los Osos Creek	3,052
	Warden Creek and Tributaries	1,812
	Los Osos Creek (Subtotal)	4,864
	Morro Bay Watershed (Total)	34,885

Final Sediment WLA Specific to the Department

Although no specific wasteload allocation was assigned to the Department, this TMDL states that discharges which are in compliance with their respective storm water (and other) NPDES permits are meeting their portion of shared responsibility for achieving sediment load reduction.

Final Sediment Deadlines

Implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements under Porter-Cologne. Final compliance with sediment load reductions is scheduled to be achieved by 2054 (50 years from the adoption of the TMDL).

Department's Sediment Contribution (relative contribution to pollutant loading)

The Department's contribution to sediment loading was not estimated in this TMDL.

LOS ANGELES REGION SEDIMENT/NUTRIENTS/MERCURY TMDLS

Department's Pollution Contribution:

Although roadways are cited as a major source of sediment loading in some watersheds, for purposes of current sediment-related TMDLs, the Los Angeles Regional Water Board has determined that compliance with its NPDES permit will meet the Department's wasteload allocations for sediment.

**Ballona Creek Wetlands Sediment and Invasive Exotic Vegetation TMDLs,
March 26, 2012**

Final Sediment WLA

U.S. EPA established wasteload allocations (WLAs) for sediment to address the impairments identified for the Ballona Creek Wetlands. WLAs are assigned to the Los Angeles County MS4 and their co-permittees, and the Department, who are responsible for the loading of sediment into Ballona Creek Wetlands. The WLAs are the total allowable sediment load that can be discharged into Ballona Creek Wetlands. This total sediment load includes both suspended sediment and sediment bed load that are transported from Ballona Creek Watershed into Ballona Creek Wetlands. Invasive exotic vegetation listed on the California Noxious Weed list are given a WLA and LA of zero.

Since the current existing discharge of sediment load is not contributing to the listed impairments or otherwise causing a negative impact to Ballona Creek Wetlands, this TMDL establishes joint WLAs based on existing conditions. The allowable WLA is set at 58,354 yd³/yr (or 44,615 m³/yr). The joint wasteload allocation is as follows:

Responsible Jurisdiction	Input	Sediment Wasteload Allocation ¹ (yd ³ /yr)	Existing Total Sediment Load (yd ³ /yr)
Los Angeles County MS4 , Co-Permittees & Department	Ballona Creek Watershed	58,354	58,354

Final Sediment WLA Specific to the Department

As stated above, there is no WLA specific to the Department. The joint point source WLA is 58,354 cubic yards of sediment per year, which is equivalent to the current estimated total sediment loading contributed by these sources.

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to anthropogenic sediment loading is not estimated or quantified in this TMDL. However, the joint WLAs are set to the current estimated sediment discharges, which the Department can meet through compliance with its NPDES municipal storm water permit.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals (including Mercury) and Selenium TMDL, March 26, 2007

Final Mercury WLA

The Department shares group mass-based WLAs for mercury for Calleguas Creek and Revolon Slough with other Permitted Storm water Dischargers (PSDs). Final WLAs are mass-based and are dependent upon annual flow ranges.

Final Mass-based WLAs for Annual Flow Ranges, Mercury in Suspended Sediment

Flow Range, Millions of Gallons per Year	Calleguas Creek (lbs/yr)	Revolon Slough (lbs/yr)
0-15,000 MGY	0.4	0.1
15,000-25,000 MGY	1.6	0.7
Above 25,000 MGY	9.3	1.8

Final Mercury WLA Specific to the Department

There is no specific allocation for the Department.

Final Mercury Deadlines

The final WLAs must be achieved within 15 years after the effective date of the amendment, or March 26, 2022.

Department’s Mercury Contribution (relative contribution to pollutant loading)

The Department’s areal proportion of the watershed is not known.

The Los Angeles Area Lakes and Reservoir

TMDLs specific to the Department include targets for the following lakes:

- Echo Park Lake: nitrogen phosphorus, chlordane, dieldrin, PCBs, and trash
- Lake Sherwood: mercury
- Legg Lakes (North, Center and Legg): nitrogen and phosphorus
- Peck Road Park Lake: nitrogen and phosphorus
- Puddingstone Reservoir: nitrogen, phosphorus, chlordane, DDT, PCBs, Hg, and Dieldrin

Wasteload allocations were assigned to responsible jurisdictions based on existing loading of nitrogen and phosphorus to each lake. To allow flexibility in implementing the nutrient TMDLs, responsible jurisdictions receiving required reductions have the option to submit a request to the Regional Board for alternative concentration-based wasteload allocations. These jurisdictions can receive alternative concentration-based wasteload allocations not to exceed 1.0 and 0.1 milligrams per liter total nitrogen and total phosphorus, respectively.

During wet weather, runoff from industrial sites has the potential to contribute pollutant loadings. During dry weather, the potential contribution of pollutant loadings from industrial storm water is low because non-storm water discharges are prohibited or authorized by the

permit only under the following circumstances: when they do not contain significant quantities of pollutants, where Best Management Practices are in place to minimize contact with significant materials and reduce flow, and when they are in compliance with Regional Board and local agency requirements.

Los Angeles Area (Echo Park Lake) Total Nitrogen, Total Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012)

Final Nutrient WLAs

	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
TOTAL	83.3	682

Final Nutrient WLAs Specific to the Department

Subwatershed	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
Northern	0.608	4.77
Southern	0.051	0.403

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contributions (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Northern	0.6 %	0.7 %
Southern	0.05 %	0.06 %

Los Angeles Area (North, Center & Legg Lakes) Nitrogen and Phosphorus, TMDLs, March 26, 2012

Final Nutrient WLA Nitrogen & Phosphorous TMDLs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	1,541	9,135

Final WLAs Specific to the Department

Subwatershed	Total Phosphorus, (lbs/year)	Total Nitrogen, (lbs/year)
Direct to Center Lake	4.6	15.5
Direct to Legg Lake	1.2	4.0
Direct to North Lake	19.1	64.1
Northwestern	9.4	29.3
Northeastern	10.9	34.0

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	Maximum Allowable WLA for Total Phosphorus (mg/L)	Maximum Allowable WLA for Total Nitrogen (mg/L)
Direct to Center Lake	0.1	1.0
Direct to Legg Lake	0.1	1.0
Direct to North Lake	0.1	1.0
Northwestern	0.1	1.0
Northeastern	0.1	1.0

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Direct to Center Lake	0.2 %	0.2 %
Direct to Legg Lake	0.1 %	<0.1 %
Direct to North Lake	1.0 %	0.6 %
Northwestern	0.5 %	0.3 %
Northeastern	0.6 %	0.3 %

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012

Final Nutrient WLAs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	19,319	186,845

Final Nitrogen & Phosphorus WLA Specific to the Department

Subwatershed	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
Eastern	158	1,165
Western	34.2	251

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Eastern	0.8 %	0.6 %
Western	0.2 %	0.1 %

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, March 26, 2012

Final Nutrient WLAs for Puddingstone Reservoir

Final Nitrogen and Phosphorus WLAs

	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
TOTAL	4,226	18,756

Final Nitrogen, Phosphorus WLAs Specific to the Department

Subwatershed	Total Phosphorus (lbs/year)	Total Nitrogen (lbs/year)
Northern	167	745
Southern	14.8	68.2

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	Maximum Allowable WLA for Total Phosphorus (mg/L)	Maximum Allowable WLA for Total Nitrogen (mg/L)
Northern	0.1	1.0
Direct Southern	0.1	1.0

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Northern	3.6 %	3.4 %
Southern	0.3 %	0.3 %

Final Mercury WLA for Puddingstone Reservoir

Final Waste Load Allocations are assigned to the Department for sub-watersheds for Puddingstone Reservoir, and must be met at the Department's discharge points.

Final Mercury WLA for Puddingstone Reservoir Specific to the Department

Mercury WLAs for Puddingstone Reservoir

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Puddingstone-Northern	110	1.32	1.85	0.702
Puddingstone-Southern	11.6	0.0960	0.13	0.051

Fish Harbor is impaired for mercury in sediment. The Department is named as a responsible party for WLAs to Fish Harbor. The final concentration-based WLA for sediment in Fish Harbor is 0.15 mg per kilogram of dry sediment.

Final Mercury Deadlines for Puddingstone Reservoir

The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Mercury Contribution for Puddingstone Reservoir (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Northern	1.32	1.85
Southern	0.096	0.13
Total	1.42	1.99

Los Angeles Area (Lake Sherwood) Mercury TMDL, March 26, 2012

Final Mercury WLA

Final waste load allocations are assigned to the Department for one sub-watershed, Lake Sherwood, and must be met at the Department's discharge points.

Final Mercury WLA Specific to the Department

Mercury WLAs for Lake Sherwood

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Carlisle Canyon	2.75	0.049	0.12	0.014

Final Mercury Deadlines

There are no final deadlines specified for the Department.

Department's Mercury Contribution (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Carlisle Canyon	0.049	0.12
Entire Watershed	0.049	0.001

Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrients), March 11, 2009

Final Nutrients WLA

Final concentration-based Waste Load Allocations are established for total phosphorus and total nitrogen (defined as the sum of the concentrations of Total Kjeldhal Nitrogen, Nitrate as N, and Nitrite as N). For most storm water permittees, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients WLA Specific to the Department

For the Department, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients Deadlines

The Department must achieve its final WLAs by September 11, 2018.

Department's Nutrients Contribution (relative contribution to pollutant loading)

The Department's contribution to the overall loading is not defined in the TMDL. The draft Machado Lake Nutrients TMDL Implementation Plan, submitted on March 11, 2011 by the Department states that the Department's roadways and facilities comprise approximately 1.2 percent of the Machado Lake Watershed.

Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients, July 2, 2013

Sediment loading into Malibu Lagoon is much higher than naturally expected. The excess sediment accumulates in the Lagoon tidal channels and carries greater nutrient loads and cause algae blooms with likely adverse impacts on benthic macroinvertebrates.

Final Sedimentation WLA

Allocations for Sedimentation as listed in Table 10-2. (Based on SCAG 2008 land use and Jurisdictional maps provided by MS4 Co-permittees.)

Type of Allocation	Responsible Party	Impervious Area (total acres)	Pervious Area (acres)	Allocation Fraction	Sedimentation Allocation (tons/yr)
WLA	WLA Los Angeles Co. below	887	10,612	17.4%	1,012
WLA	Department below Malibou Lake	60	61	0.8%	44
LA	Unincorporated area draining to Las Virgenes Creek**	8	267	0.3%	16
LA	Protected land below Malibou Lake*	253	16,820	13.7	796
LA	Load Allocation at outlet of Malibou Lake	3,669	37,550	67.9%	3,950
Total		4,878	65,310	100.0 %	5,817

Final Sedimentation WLA Specific to the Department

See Table 10-2 above for the Department's below Malibou Lake.

Final Sedimentation Deadlines

U.S. EPA did not develop final deadlines for this TMDL.

Department's Sedimentation Contribution (relative contribution to pollutant loading)

See the Department's Nutrients Contribution below.

Final Nutrients WLA

There are no total final WLAs for Malibu Creek and Lagoon. Below are the concentration-based numeric targets as listed in Table 10-4 of this TMDL.

Season	Total Nitrogen (mg/l)	Total Phosphorus (mg/l)
Summer (Apr 15 – Nov 15)	0.65	0.1
Winter (Nov 16 - Apr 14)	1.0	0.2

Final Nutrients WLA Specific to the Department

Final WLAs are established Total Nitrogen (TN) and Total Phosphorus (TP) for summer and winter as listed in Table 10-4 of this TMDL.

Summer TN, mg/l (Apr 15 – Nov 15)	Winter TN, mg/l (Nov 16 – Apr 14)	Summer TP, mg/l (Apr 15 – Nov 15)	Winter TP, mg/l (Nov 16 – Apr 14)
1.0	4.0	0.1	0.2

Final Nutrients Deadlines

EPA did not develop final deadlines for this TMDL.

Department’s Nutrients Contribution (relative contribution to pollutant loading)

The Department’s total area within the watershed is 206 acres, of a total of 65,310 acres or 0.317% of the total watershed.

The Department’s contribution to the nutrient loads is not specified in the TMDL, but it can be assumed that the contribution is nearly the same as the allocation fraction for sediment in Table 10-2, at 0.8%. Multiplying the monthly watershed loads for winter and summer from Tables 5-3 and 5-4, respectively, by the Department’s allocation fraction provides an approximation of the Department’s total contribution to the monthly load.

Source	Summer TN Load kg/mo (Apr 15 – Nov 15)	Winter TN Load kg/mo (Nov 16 – Apr 14)	Summer TP Load kg/mo (Apr 15 – Nov 15)	Winter TP Load kg/mo (Nov 16 – Apr 14)
Total Load	789	20,442	140	2,842
Department Runoff (estimate based on area)	6.31	164	1.12	22.7

Ventura River and its Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL, June 28, 2013

This TMDL establishes dry-weather and wet-weather WLAs for nitrogen and a dry-weather TMDL for phosphorus.

Final Nutrients WLA

The final dry-weather Total Nitrogen and Total Phosphorus loads are not explicitly stated in the TMDL.

Final Nutrients WLA Specific to the Department

The final total dry-weather total nitrogen WLA for the Department is 1.1 pound/day. The final dry-weather total phosphorus WLA for the Department is 0.11 pound/day.

Wet-weather allocations for “nitrogen”, defined as the sum of Nitrate-N and Nitrite-N, are the same for all storm water dischargers and are site-specific to the reaches of the watershed:

Reach	Nitrate-N + Nitrite-N (mg/L)
Estuary	7.4
Reach 1	7.4
Reach 2	10
Cañada Larga	10
Reach 3	5
San Antonio Creek	5
Reach 4	5
Reach 5	5

Final Nutrients Deadlines

Wet-weather WLAs for the Department apply on the effective date of the TMDL. Dry-weather WLAs for the Department must be achieved by June 28, 2019.

Department’s Nutrients Contribution

The Department’s proportional contributions to the final WLAs are estimated to be approximately 1 percent each.

CENTRAL VALLEY REGION NUTRIENTS AND MERCURY TMDLS

Clear Lake Nutrients TMDL, September 21, 2007

Final Nutrients WLA

The final WLA for phosphorus for Clear Lake is 2100 kg per year.

Final Nutrients WLA Specific to the Department

The Department is given a final WLA for phosphorus of 100 kg per year.

Final Nutrients Deadlines

The Department shall achieve its WLAs by September 21, 2017.

Department’s Nutrients Contribution (relative contribution to pollutant loading)

The Department contributes 4.8 percent to the final phosphorus WLA.

**Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch Mercury TMDL,
February 7, 2011**

Final Methylmercury WLA

Implementation Summary Cache Creek and Bear Creek Methylmercury Allocations

Source	Acceptable Annual Load (g/yr)
Cache Creek (Clear Lake to North Fork Confluence)	11
North Fork Cache Creek	12.4
Harley Gulch	0.04
Davis Creek	0.7
Bear Creek @ Highway 20	3
In-channel production and un-gauged tributaries	32
Bear Creek @ Bear Valley Road	0.9
Sulphur Creek	0.8
In-channel production and un-gauged tributaries	1

Final Mercury WLA Specific to the Department

No specific WLA assigned to the Department.

Final Mercury Deadlines

None specified.

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pollutant loading is not known.

**Sacramento-San Joaquin River Delta Estuary Methylmercury TMDL,
October 20, 2011**

Final Methylmercury WLA

Delta Methylmercury Allocations

Permittee	NPDES Permit	Waste Load Allocation (g/yr)
Central Delta		
County of Contra Costa	CAS083313	0.75
City of Lodi	CAS000004	0.053
Port of Stockton MS4	CAS084077	0.39
County of San Joaquin	CAS000004	0.57
Stockton Area MS4	CAS083470	3.6
SUBTOTAL		5.4
Marsh Creek		
County of Contra Costa	CAS083313	0.30
SUBTOTAL		0.30
Mokelumne River		

Permittee	NPDES Permit	Waste Load Allocation (g/yr)
County of San Joaquin	CAS000004	0.016
<i>SUBTOTAL</i>		<i>0.016</i>
Sacramento River		
City of Rio Vista	CAS000004	0.0078
Sacramento Area MS4	CAS082597	1.0
County of San Joaquin	CAS000004	0.11
County of Solano	CAS000004	0.041
City of West Sacramento	CAS000004	0.36
County of Yolo	CAS000004	0.041
<i>SUBTOTAL</i>		<i>1.6</i>
San Joaquin River		
City of Lathrop	CAS000004	0.097
Port of Stockton MS4	CAS084077	0.0036
County of San Joaquin	CAS000004	0.79
Stockton Area MS4	CAS083470	0.18
City of Tracy	CAS000004	0.65
<i>SUBTOTAL</i>		<i>1.7</i>
West Delta		
County of Contra Costa	CAS083313	3.2
<i>SUBTOTAL</i>		<i>3.2</i>
Yolo Bypass		
County of Solano	CAS000004	0.021
City of West Sacramento	CAS000004	0.28
County of Yolo	CAS000004	0.083
<i>SUBTOTAL</i>		<i>0.38</i>
TOTAL		12.596

Final Methylmercury WLA Specific to the Department

There are no WLAs specific to the Department. However, allocations for each of the defined municipal entities in the above table include all current and future permitted dischargers within the geographic boundaries of these municipalities and unincorporated areas, including the Department.

Final Methylmercury Deadlines

The final WLAs for dischargers in the Delta and Yolo bypass shall be met as soon as possible, but no later than January 1st, 2030.

Department's Methylmercury Contribution (relative contribution to pollutant loading)

The Department's contribution to the methylmercury load is not known.

LAHONTAN REGION SEDIMENT/NUTRIENTS TMDLS

Lake Tahoe Sediment and Nutrients TMDL, August 16, 2011

Attachment IV incorporates TMDL-specific permit requirements for the sediments and nutrients TMDL for Lake Tahoe. The TMDL requires the Department to meet pollutant load reduction requirements and to develop and implement a comprehensive Pollutant Load Reduction Plan (PLRP).

Final Sediment WLA

The pollutant load reduction requires the Department to reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by ten percent, seven percent and eight percent respectively by September 30, 2016. The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reductions.

Final Sediment Deadlines

This plan is to be submitted no later than July 15, 2013. By July 15, 2014, the Department shall submit a Progress Report documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011. The Department shall also prepare and submit a Storm Water Monitoring Plan for review and approval by the Regional Board by July 15, 2013 and implement the approved plan.

Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Sediment Contribution (relative contribution to pollutant loading)

Final Nutrient WLA

Constituent	Basin-Wide Load (MT/yr)	Urban Upland Load	Final Urban Upland Reduction %	Final WLA, (MT/yr)
Nitrogen	345	63	50	31.5
Phosphorus	38	18	46	8.28

Final Nutrient WLA Specific to the Department

The Department's specific contributions to the loads are not defined. The Department is part of a group of Urban Upland (storm water) dischargers. The Department was required to submit a 2004 baseline load estimate specific to its jurisdiction by August 16, 2013.

Final Nutrient Deadlines

Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pollutant loading is not known.

Truckee River Sediment TMDL, September 16, 2009

TMDL attainment will be evaluated through the TMDL targets: these targets express desired conditions in the watershed, rather than sediment mass reductions. This was deemed to be appropriate because sediment mass reductions are not a practical indication of beneficial use protection due to the inherent natural variability of sediment delivery and the uncertainties associated with accurately measuring sediment loads and reductions.

Final Sediment WLA

For the most part, point source dischargers' compliance with their respective NPDES permits are deemed to be evidence of compliance with their respective responsibilities to help achieve desired watershed conditions, as described above.

Final Sediment WLA Specific to the Department

The Department's compliance with its storm water permit is deemed to be evidence of compliance with its responsibility to help achieve desired watershed conditions, as described above.

Final Sediment TMDL Deadlines

The Truckee River instream sediment targets are currently being met and will be further evaluated for TMDL attainment.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to sediment pollutant loading is not known.

SANTA ANA REGION NUTRIENTS AND MERCURY TMDLS

Big Bear Lake Nutrients for Dry Hydrological Conditions TMDL, September 25, 2007

This TMDL contains waste load allocations for phosphorus loads under dry hydrological conditions, defined as an average tributary inflow to Big Bear Lake ranging from 0 to 3,049 acre-feet, average lake levels ranging from 6,671 to 6,735 feet and annual precipitation ranging from 0 to 23 inches.

Final Nutrients WLA

The total Waste Load Allocation is 475 pounds/year.

Final Nutrients WLA Specific to the Department

There is no WLA specific to the Department.

Final Nutrients Deadlines

The WLA must be achieved by December 31, 2015.

Department’s Nutrients Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to nutrient pollutant loading is not known.

Lake Elsinore and Canyon Lake Nutrients TMDL, September 30, 2005

The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. If the Department doesn’t fulfill its Lake Elsinore/Canyon Lake Task Force obligations or if the Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies then the Department will have to implement the requirements listed in Table IV.2. of Attachment IV.

Final Nutrients WLA

Waterbody	Final Total Phosphorus Waste Load Allocation (kg/year)	Final Total Nitrogen Waste Load Allocation (kg/year)
Canyon Lake	487	6,248
Lake Elsinore	3,845	7,791

Final Nutrients WLA Specific to the Department

There are no WLAs specific to the Department.

Final Nutrients Deadlines

Final allocation compliance is to be achieved by December 31, 2020.

Department’s Nutrient Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the nutrient pollutant loading is not available.

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Mercury Final WLA

A WLA for mercury to Rhine Channel is 0.225 kilograms/year.

Mercury Final WLA Specific to the Department

The final mass-based Mercury WLA for the Department is 0.0027 kilograms/year.

Mercury Final Deadlines

The Santa Ana Regional Water Quality Control Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the mercury loading is approximately three percent. This WLA was developed by taking the available load and dividing it roughly in proportion to the land areas associated with the remaining source categories (including the Department).

SAN DIEGO REGION SEDIMENT AND NUTRIENTS TMDLS

Historical loading of sediment to some coastal wetlands within Region 9 has resulted in impacts to natural wetland functions. The excess deposition and movement of sediment within remaining coastal wetlands has greatly altered the natural conditions. Urbanized development of the watershed and the channel straightening has modified both the sediment supply and the ability of flows to transport sediments. Additionally, channelization of streams has cut off the banks and floodplains of natural rivers within these watersheds. Sediments carried in flows are not stored within the banks but are rather transported to the outlet of coastal estuaries where they are deposited. Recurring dredging operations in coastal areas also affect sediment transport and deposition patterns in these watersheds. Wetland and estuarine habitats tend to be fragmented by existing roads, infrastructure, and surrounding urbanized development.

In some Region 9 watersheds, natural processes of erosion have been accelerated due to anthropogenic watershed disturbances, resulting in impairment of additional principally biological resources, but also recreational uses, including: RARE, MIGR, SPWN, WILD, EST, MAR, BIOL, REC1, REC2, NAV.

Rainbow Creek Total Nitrogen and Total Phosphorus TMDL, March 22, 2006

Final Nutrient WLA

The final WLA for nitrogen is 82 kilograms/year. The final WLA for phosphorus is eight kilograms/year.

Final Nutrient WLA Specific to the Department

The final WLA for nitrogen for the Department is 49 kilograms/year. The final WLA for phosphorus for the Department is five kilograms/year.

Final Nutrient Deadlines

The Department shall achieve the final WLA by December 31, 2021.

Department's Nutrient Contribution (relative contribution to pollutant loading)

The Department's contribution to the nitrogen and phosphorus WLAs is three percent of the total.

C. Metals/Toxics/Pesticides TMDL Pollutant Category

General Description of Pollutant Category

Toxic pollutants, including but not limited to Pesticides, Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs), cause several impairments to California's water quality.

Sources of Pollutant & How it Enters the Waterway

The main transport mechanism for these pollutants is through fine sediment. Once the contaminated fine sediments wash off the roadways and into storm drains or nearby receiving waters they re-suspend in the water column and become bioavailable.

Metals including copper, zinc, lead, cadmium, nickel and chromium are toxic to aquatic life and cause impairments to California's waterbodies. Toxic metals are present in water as both dissolved and total recoverable fractions. During times of high precipitation (storm events), the primary transport mechanism for metals, especially in the total recoverable fraction, is again the mobilization of fine sediment. Accumulated contaminated fine sediment washes off roadways and into storm drains or nearby receiving waters. Metals in the sediment become bioavailable while suspended in the water column. During times of low precipitation, flows that reach storm drains or discharge points are typically insufficient to mobilize fine sediment, but dissolved metal ions are still bioavailable and reach discharge points.

Mechanical components of automobiles, especially those that are subjected to frictional stresses are either known or supposed sources of these metals (i.e., copper from brake pads and zinc from synthetic rubber tires). Some toxic metals are also present in petroleum-based lubricants and in gasoline and diesel fuel (i.e. cadmium).

Watershed Contribution

The Department is identified in many TMDLs as a source of toxic pollutants because they own and operate the roadways which act as conveyance systems of fine sediments. However, in most cases the Department makes up a relatively minor load for toxic pollutants because the models used to develop TMDLs rely on the percentage of land use to determine WLAs.

The Department is named in the TMDLs below as a source of metals in storm water because it owns, operates and maintains roadways and facilities present in these watersheds. As with toxics, in most cases, the Department is assigned a relatively minor proportion of the entire storm water WLA for each metal because its roadways and facilities comprise a small proportion of the total watershed area.

Control Measures

The requirements in Part C of Attachment IV of this permit address both dissolved and sediment-bound sources of toxics and metals. Section C.1 addresses treatment of the fine sediment fraction of toxics and metals and requires that the Department implement structural controls/BMPs.

Dissolved fraction metal impairments require an inventory of outfalls/discharge points to waterbodies within each prioritized reach impaired by dissolved fraction metals and to propose and implement appropriate controls consistent with the report.

The Reach Prioritization and Implementation Requirements in Section I.A. and I.B. of Attachment IV place a priority on identifying and addressing the highest source generating areas. This strategy will control the largest sources of fine sediment for a minor pollutant source and allow for attainment of the applicable WLAs consistent with the Toxic Pollutants and Metals TMDLs identified in Table IV.2 of Attachment IV.

In Section III.C.1, the options for controlling sediment-bound toxics and metals are essentially the same. The types of BMPs expected to be implemented to address fine sediment discharges under C.1 are those expected to be implemented to address sediment discharges for the sediment TMDLs discussed above.

Section III.C.2 explains that Dissolved Fraction Metals levels in storm water are reduced when contaminated sediment is removed or mitigated, but additional structural and non-structural BMPs may still be necessary to achieve compliance. In some cases, this may require building or instituting BMPs in addition to those used for metals in fine sediments for the same discharge points. Structural BMPs might include Infiltration or detention basins/trenches, filtration using metal-absorbing media, etc.

Section III.C.3. Pesticides. The Department is to comply with the Vegetation Control provision that specifies practices for the safe handling and use of pesticides, including compliance with federal, state and local regulations, and label directions.

SAN FRANCISCO BAY REGION TOXIC TMDLS

San Francisco Bay PCBs TMDL, March 29, 2010

The TMDL identifies storm water runoff as a major source for PCB transport and includes the Department's roadways, non-roadway facilities, and rights-of-way.

Final PCBs WLA

The total WLA for all storm water runoff sources is two kilograms/year.

Final PCBs WLA Specific to the Department

All storm water runoff sources share a two kilograms/year WLA.

Final PCBs Deadlines

The WLA of two kilograms/year is broken up by county and is to be achieved within 20 years or March 29, 2030.

Department's PCBs Contribution (relative contribution to pollutant loading)

The TMDL also directs the storm water sources to implement this TMDL through the applicable NPDES permits.

San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity, May 16, 2007

Final Pesticide Toxicity WLA

The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The WLA for each storm water entity is 1 TUC_a (TUC_a = 100/No Observed Adverse Effect Concentration) and one TUC_c (TUC_c = 100/No Observed Effect Concentration) in water and sediment.

Final Pesticide Toxicity WLA Specific to the Department

The Department's level of responsibility is not identified.

Final Pesticide Toxicity Deadlines

The TMDL specifies that all NPDES permits for runoff management agencies, including the Department, require implementation of best management practices and control measures that reduce pesticides in urban runoff to the maximum extent practicable. No final compliance date is specified, however, the Regional Water Board may require additional control measures if the Department fails to meet the TMDL targets.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pesticide toxicity pollutant loading is not known.

LOS ANGELES REGION METALS AND TOXICITY TMDLS

Ballona Creek Metals & Selenium TMDL, December 22, 2005 and reaffirmed on December 29, 2008

The TMDL identifies storm water as a significant contributor to loadings of copper, lead and zinc (and selenium) to Ballona Creek and Sepulveda Canyon Channel in both dry weather and wet weather.

Final Metals WLA

Storm water allocations are divided among the MS4 and general permits named in the TMDL based on an areal weighting approach.

Final Metals WLA Specific to the Department

The Department is assigned separate dry-weather and wet-weather Waste Load Allocations (WLAs). Dry-weather conditions apply to days when the maximum daily flow in Ballona Creek is less than 40 cubic feet per second (cfs), and wet-weather conditions apply to days when the maximum daily flow in Ballona Creek is equal to or greater than 40 cfs. Both dry-weather and wet-weather WLAs are mass-based, although alternate concentration-based dry-weather WLAs are allowed due to the expense of obtaining accurate flow measurements.

Dry-weather WLAs g/day, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
Ballona Creek	11.2	6.0	143.1
Sepulveda Channel	5.1	2.7	64.7

Wet-weather WLAs, g/day, Total Recoverable Metal; V is daily flow volume in liters:

Waterbody	Copper	Lead	Zinc
All	$2.37 * V * 10^{-7}$	$7.78 * V * 10^{-7}$	$1.57 * V * 10^{-6}$

Alternate dry-weather WLAs, µg/L, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
All	24	13	304

Final Metals Deadlines

The Department is responsible for meeting its assigned mass-based WLAs, but has the option to work with the other MS4 permittees. Each municipality and permittee is required to meet the storm water waste load allocation at designated TMDL effectiveness monitoring points. The MS4 permittees including the Department may use a combination of structural and non-structural BMPs to achieve compliance with the storm water WLAs. Total compliance is to be achieved by January 11, 2021.

Department's Metals Contribution (relative contribution to pollutant loading)

The Department's relative contribution to metals pollutant loading is not known.

Ballona Creek Estuary Toxic Pollutants TMDL, December 22, 2005

Final OC-Compounds & PAHs WLA

The storm water WLAs are apportioned between the MS4 permittees, the Department, the general construction, and the general industrial storm water permits based on an areal weighting approach.

Final WLA Specific to the Department

The Department is assigned the following WLAs based on the 1.3 percent land area associated with the Department:

Metals Storm Water WLAs Apportioned between Permits

Cadmium (kg/yr)	Copper (kg/yr)	Lead (kg/yr)	Silver (kg/yr)	Zinc (kg/yr)
0.11	3.2	4.4	0.09	14

Organics Storm Water WLAs Apportioned between Permits

Total Chlordane (g/yr)	Total DDTs (g/yr)	Total PCBs (g/yr)	Total PAHs (g/yr)
0.05	0.15	2	400

Final WLA Deadlines

The implementation schedule for the MS4 and the Department permittees consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed with total compliance to be achieved within 15 years of the TMDL effective date or December 22, 2020.

Department's WLA Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the pollutant loading is unknown.

Calleguas Creek OC Pesticides, PCBs, and Siltation TMDL, March 14, 2006

Final OC Pesticides & PCBs WLA

In accordance with current U.S. EPA practice, a group concentration-based WLA has been developed for MS4s, including the Department's MS4. The grouped allocation will apply to all NPDES-regulated municipal storm water discharges in the Calleguas Creek Watershed. Storm water WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points of each subwatershed and are expected to be achieved through the implementation of BMPs as outlined in the implementation plan.

Interim WLAs as an In-stream Annual Average (ng/g)

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total Chlordane	25.0	17.0	48.0	3.3	3.3	3.4
4,4-DDD	69.0	66.0	400.0	290.0	14.0	5.3
4,4-DDE	300.0	470.0	1,600.0	950.0	170.0	20.0
4,4-DDT	39.0	110.0	690.0	670.0	25.0	2.0
Dieldrin	19.0	3.0	5.7	1.1	1.1	3.0

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total PCBs	180.0	3,800.0	7,600.0	25,700.0	25,700.0	3,800.0
Toxaphene	22,900.0	260.0	790.0	230.0	230.0	260.0

Final WLAs as an In-stream Annual Average

Pollutant	Mugu Lagoon (ng/g)	Calleguas Creek (ng/g)	Revolon Slough (ng/g)	Arroyo Las Posas (ng/g)	Arroyo Simi (ng/g)	Conejo Creek (ng/g)
Total Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	2.0	2.0	2.0	2.0	2.0	2.0
4,4-DDE	2.2	1.4	1.4	1.4	1.4	1.4
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
Total PCBs	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6

Final OC Pesticides & PCBs WLA Specific to the Department

See Tables above.

Final OC Pesticides & PCBs Deadlines

The above Final WLAs (ng/g) as an in-stream annual average are to be achieved by March 24, 2026, but the schedule and allocations can be altered based on the results of several special studies required in the TMDL implementation plan.

Department's OC Pesticides & PCBs Contribution (relative contribution to pollutant loading)

The Department's relative pesticide and PCB contribution is not known.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Final Metals WLAs

Urban storm water runoff was identified as a source for metals pollution in the TMDL. The Department shares group WLAs for nickel, copper and selenium with other Permitted Storm water Dischargers (PSDs). Concentration-based interim limits for nickel, copper and selenium are effective from the date of the TMDL for all PSDs. Final WLAs are mass-based.

There are final WLAs for both dry-weather and wet-weather conditions. The dry-weather WLAs apply to days when flows in the stream are less than the 86th percentile flow rate for each reach. The wet-weather WLAs apply to days when flows in the stream exceed the 86th percentile flow rate for each reach. Dry weather limits are based on chronic California Toxics Rule (CTR) criteria. Wet weather limits are based on acute CTR criteria.

Interim Concentration-based Wet and Dry Weather Limits

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L
Copper	23	19	204	23	19	204
Nickel	15	13	*	15	13	*

* The current loads do not exceed the TMDL under wet conditions: interim limits not required

Final Mass-based Dry-weather WLAs, lbs/day, Total Recoverable Metal in Water Column

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Low	Average	Elevated	Low	Average	Elevated
Copper (lbs/day)	0.04 * WER – 0.02	0.12 * WER – 0.02	0.18 * WER – 0.03	0.03 * WER – 0.01	0.06 * WER – 0.03	0.13 * WER – 0.02
Nickel (lbs/day)	0.100	0.120	0.440	0.050	0.069	0.116

Final Mass-based Wet-weather WLAs, lbs/day, total recoverable metal in water column

Metal	Calleguas Creek	Revolon Slough
Copper (lbs/day)	$(0.00054*Q^2 + 0.032*Q - 0.17)*WER - 0.06$	$(0.0002*Q^2 + 0.0005*Q)*WER$
Nickel (lbs/day)	$0.014*Q^2 + 0.82*Q$	$0.027*Q^2 + 0.47*Q$

A WER is applied to final numeric targets for copper for the Mugu Lagoon, Calleguas Creek 2, and Revolon/Beardsley reaches; the WER defaults to a value of one (1) unless a site-specific study is approved. The mass-based WLAs apply to the Permitted Storm water Dischargers as a group, and the Department has no specific proportional WLA.

Final Metals WLA Specific to the Department

The WLAs above apply to all permitted storm water dischargers, including the Department. The Department has no specific final WLAs.

Final Metals Deadlines

All PSDs have required interim reductions of 25 percent and 50 percent by March 26, 2012 and March 26, 2017, respectively. The final WLAs must be achieved within 15 years after the effective date of the amendment (March 26, 2022). Implementation shall be achieved through BMPs. The Department was originally tasked with submitting an Urban Water Quality Control Plan by March 26, 2012. Implementation is meant to be achieved using BMPs. The Department was required to conduct a source control study and submit an

Urban Water Quality Management Program for copper, nickel, selenium and mercury by March 26, 2009.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s contribution to the metal loads is unknown.

Colorado Lagoon OC Pesticides, PCBs, Sediment Toxicity, PAHs and Metals TMDL, June 14, 2011

The TMDL identifies the point sources of OC pesticides, PCBs, PAHs, and metals discharged to Colorado Lagoon are urban runoff and storm water discharges from the MS4 and the Department. The Colorado Lagoon watershed is divided into five sub-basins that discharge storm water and urban dry weather runoff to Colorado Lagoon. Each of the sub-basins is served by a major storm sewer trunk line and supporting appurtenances that collect and transport storm water and urban dry weather runoff to Colorado Lagoon.

Final WLAS for OC Pesticides, PCBs, and PAHs

The Department and the City of Long Beach shall each be responsible for achieving the following final mass-based WLAs assigned to the Line I Storm Drain as it conveys storm water from both the Department’s facilities and the City of Long Beach:

Final Mass-based WLA for MS4 Discharges

Total Chlordane	Dieldrin (mg/yr)	Total PAHs (mg/yr)	Total PCBs (mg/yr)	Total DDTs (mg/yr)
3.65	0.15	29,321.50	165.49	11.52

In addition, concentration-based WLAs for sediment are assigned to MS4 permittees including the City of Long Beach, LACFCD, and the Department. Concentration-based WLAs for sediment are applied as average monthly limits. Compliance with the concentration-based WLAs for sediment shall be determined by pollutant concentrations in the sediment in the lagoon at points in the West Arm, North Arm, and Central Arm that represent the cumulative inputs from the MS4 drainage system to the lagoon. Concentration-based interim WLAs for sediment are set to allow time for removal of contaminated sediment through proposed implementation actions. Interim WLAs are based on the 95th percentile value of sediment data collected from 2000-2008. The following interim and final WLAs will be included in MS4 permits in accordance with NPDES guidance and requirements:

Concentration-based WLAs

Pollutants	Interim WLAs (µg/dry kg)	Final WLAs (µg/dry kg)
Total Chlordane	129.65	0.50
Dieldrin	26.20	0.02
Total PAHs	4,022	4,022
Total PCBs	89.90	22.7
Total DDTs	149.80	1.58

Final WLAs for Metals

The Department is jointly responsible with the City of Long Beach in attaining final mass-based WLAs for lead and zinc in sediment and storm water conveyed to Colorado Lagoon via the Line I Storm Drain. In addition, concentration-based interim limits are established for all storm water dischargers, including the Department.

Interim Concentration-based WLAs for Metals in Sediment

Metal	Average Monthly Sediment	
	Interim WLA (µg/kg)	Final WLA (µg/kg)
Lead	399,500	46,700
Zinc	565,000	150,000

Final Mass-based WLAs for Metals in Line I Storm Drain

Metal	mg/yr
Lead	340,455.99
Zinc	1,093,541.72

Proposed BMPs that may apply to the Line I Storm Drain include:
 Low-flow diversion, trash separation devices, vegetated bioswales, cleaning of existing culverts, or direct removal of accumulated sediment

Final OC Pesticides, PCBs & PAHs WLA Specific to the Department

See tables above.

Final OC Pesticides, PCBs & PAHs Deadlines

The Department is subject to the prescribed point source interim WLAs which are effective as of July 28, 2011. Compliance with all final WLAs is required by July 28, 2018.

The Department's OC Pesticides, PCBs & PAHs Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the OC Pesticides, PCBs, and PAHs pollutant loading is not known.

Dominguez Channel and Greater Los Angeles and Long Beach Harbor Toxic Pollutants TMDL, March 23, 2012

The toxic pollutants included in this TMDL include Copper, lead, zinc, DDT, PAHs, and PCBs.

Final WLAs for OC Pesticides PCBs, and PAHs

Interim and final WLA are assigned to storm water discharges including those from the Department’s MS4. Dominguez Channel freshwater allocations are set for wet weather only because exceedances have only been observed in wet weather. Mass-based allocations have been set where sufficient data was available to calculate mass-based allocations; otherwise, concentration-based allocations have been set. Interim and final WLAs shall be included in permits in accordance with state and federal regulations and guidance.

An interim freshwater toxicity allocation of two chronic toxicity units (TUc) applies to all point sources to Dominguez Channel during wet weather including the Department. A final freshwater toxicity allocation of one (1) TUc applies to all point sources to Dominguez Channel during wet weather including the Department.

Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006. The final mass-based allocations for PAHs expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long beach Harbor Waters. The final mass-based allocations for Total DDT and Total PCBs, expressed annual loading (grams/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters.

OC Pesticides PCBs, and PAHs Interim and Final WLAs

Interim Concentration-Based Sediment Allocations			
	Total PAHs (mg/kg)	Total DDTs (mg/kg)	Total PCBs (mg/kg)
Dominguez Channel Estuary	31.60	1.727	1.490
Long Beach Inner Harbor	4.58	0.070	0.060
Los Angeles Inner Harbor	90.30	0.341	2.107
Long Beach Outer Harbor	4,022	0.075	0.248
Los Angeles Outer Harbor	4,022	0.097	0.310
Los Angeles River Estuary	4.36	0.254	0.683
San Pedro Bay	4,022	0.057	0.193
Cabrillo Marina	36.12	0.186	0.199
Consolidated Slop	386.00	1.724	1.920
Cabrillo Beach Area	4,022	0.145	0.033
Fish Harbor	2102.7	40.5	36.6

Final Mass-Based Sediment Allocations for the Department			
	Total PAHs (kg/yr)	Total DDTs (g/yr)	Total PCBs (g/yr)
Dominguez Channel Estuary	0.0023	0.004	0.004
Consolidated Slip	0.00009	0.00014	0.00006
Inner Harbor	0.0017	0.0010	0.0011
Outer Harbor	0.00021	0.000010	0.00004
Fish Harbor	0.000021	0.0000010	0.000006
Cabrillo Marina	0.0000016	0.00000028	0.00000024
San Pedro Bay	0.077	0.002	0.019
LA River Estuary	0.333	0.014	0.047

Final Concentration-based Sediment WLAs for Other Bioaccumulative Compounds (dry sediment)		
Total Chlordane (µg/kg)	Dieldrin (µg/kg)	Toxaphene (µg/kg)
0.5	0.02	0.10

Final OC Pesticides PCBs, and PAHs WLAs for Metals

Interim and final WLAs for copper, lead and zinc are assigned to storm water discharges including those from the Department's MS4. Freshwater allocations for Dominguez Channel are set for wet weather only because exceedances have only been observed in wet weather. Wet weather conditions in Dominguez Channel and all of its upstream tributaries apply to any day when the maximum daily flow is greater than 62.7 cfs at any point in Dominguez Channel. Mass-based allocations have been set where sufficient data were available to calculate mass-based allocations; otherwise, WLAs are concentration-based.

Interim allocations for Dominguez Channel and Torrance Lateral are assigned to storm water dischargers, including the Department, and are based on the 95th percentile of total metals data collected from January 2006 to January 2010 using a log-normal distribution. Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006.

Interim Concentration-Based WLAs for Dominguez Channel and Torrance Lateral

Total Copper (µg/L)	Total Lead (µg/L)	Total Zinc (µg/L)
207.51	122.88	898.87

Interim Concentration-Based Sediment Allocations (mg/kg sediment)

Waterbody	Copper (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
Dominguez Channel Estuary	220.0	510.0	789.0
Long Beach Inner Harbor	142.3	50.4	240.6
Los Angeles Inner Harbor	154.1	145.5	362.0
Long Beach Outer Harbor	67.3	46.7	150
Los Angeles Outer Harbor	104.1	46.7	150
Los Angeles River Estuary	53.0	46.7	183.5
San Pedro Bay	76.9	66.6	263.1
Cabrillo Marina	367.6	72.6	281.8
Consolidated Slip	1470.0	1100.0	1705.0
Cabrillo Beach Area	129.7	46.7	163.1
Fish Harbor	558.6	116.5	430.5

Wet-weather freshwater metals allocations are assigned to Dominguez Channel and all of its upstream reaches and tributaries above Vermont Avenue. Mass-based (grams/day) WLAs are divided between the Department and other MS4 permittees by subtracting the other storm water or NPDES WLAs, air deposition and margin of safety from the total loading capacity. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates for Dominguez Channel (62.7 cfs).

The Department's Final mass-based water WLAs for Dominguez Channel

Total Copper	Total Lead	Total Zinc
32.3 (g/day)	142.6 (g/day)	232.6 (g/day)

For the Torrance Lateral subwatershed, concentration-based freshwater WLAs for both water and sediment are assigned to all dischargers, including the Department. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates.

The Department's Final concentration-based WLAs for Torrance Lateral

Media (units)	Total Copper	Total Lead	Total Zinc
Water (µg/L, unfiltered)	9.7	42.7	69.7
Sediment (mg/kg, dry)	31.6	35.8	121

The final mass-based allocations for metals are expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters. The Interim and Final WLAs are:

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Dominguez Channel Estuary	0.384	0.93	4.7
Consolidated Slip	0.043	0.058	0.5

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Inner Harbor	0.032	0.641	2.18
Outer Harbor	0.0018	0.052	0.162
Fish Harbor	0.0000005	0.00175	0.0053
Cabrillo Marina	0.00019	0.0028	0.007
San Pedro Bay	0.88	2.39	9.29
LA River Estuary	5.1	9.5	34.8

In addition to the above, Fish Harbor is impaired for mercury in sediments, Consolidated Slip is impaired for mercury, cadmium and chromium in sediments and Dominguez Channel Estuary is impaired for cadmium in sediments. These waterbodies are assigned no interim WLAs but are assigned final concentration-based WLAs. The Department is NOT named as a responsible party for WLAs to Consolidated Slip.

Final concentration-based sediment WLAs for other metals, dry sediment

Reach	Cadmium mg/kg	Chromium mg/kg	Mercury mg/kg
Dominguez Channel Estuary	1.2	-	-
Fish Harbor	-	-	0.15

Note: The Department is NOT specifically named as a responsible party for implementation actions to Dominguez Channel proper in the 1st Phase of implementation to reduce the amount of sediment transport from point sources that directly or indirectly discharge to the Dominguez Channel and the Harbor waters, even though it has specific WLAs.

Final Toxic Pollutant WLA Specific to the Department

See tables above.

Final Toxic Pollutant Deadlines

The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Toxic Pollutant Contribution (relative contribution to pollutant *loading*)

The Department's relative contribution to the toxic pollutant loading is not known.

Los Angeles Area Lakes for Organochlorine Pesticides and PCBs

To assess compliance with the organochlorine (OC) compounds TMDLs, monitoring should include monitoring of fish tissue at least every three years as well as once yearly sediment and water column sampling. For the OC pesticides and PCBs TMDLs a demonstration that fish tissue targets have been met in any given year must at minimum include a composite sample of skin off fillets from at least five common carp each measuring at least 350mm in length. At a minimum, compliance monitoring should measure the following in-lake water quality parameters: total suspended sediments, total PCBs, total chlordane, dieldrin, and total DDTs; as well as the following in-lake sediment parameters: total organic carbon, total PCBs, total chlordane, dieldrin, and total DDTs. WLAs are assigned to storm water inputs.

These sources should be measured near the point where they enter the lakes once a year during a wet weather event. Sampling should be designed to collect sufficient volumes of suspended solids to allow for the analysis of at minimum: total organic carbon, total suspended solids, total PCBs, total chlordane, dieldrin, and total DDTs. Measurements of the temperature, dissolved oxygen, pH and electrical conductivity should also be taken.

U.S. EPA established TMDLs do not include implementation plans so all WLAs are considered in effect as of the approval date.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, and Trash TMDLs, U.S. EPA Established on March 26, 2012

The entire watershed of Echo Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department's areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, and Dieldrin, and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final WLAs

PCBs WLA

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (µg/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.77	0.17
Southern	Department	State Highway Storm water	1.77	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	2.10	0.59
Southern	Department	State Highway Storm water	2.10	0.59

If Fish Tissue Targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.59
Southern	Department	State Highway Storm water	3.24	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.80	0.14
Southern	Department	State Highway Storm water	0.80	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department's OC Compounds Contribution (relative contribution to pollutant loading)
 The Department's relative contribution to the OC Pesticide pollutant loading is unknown.

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash

Final OC Compounds WLA

The entire watershed of Peck Road Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final OC Compounds WLA Specific to the Department

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.29	0.17
Western	Department	State Highway Storm water	1.29	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	59.8	0.17
Western	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.73	0.59
Western	Department	State Highway Storm water	1.73	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	3.24	0.59
Western	Department	State Highway Storm water	3.24	0.59

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	5.28	0.59
Western	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	0.43	0.14
Western	Department	State Highway Storm water	0.43	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.90	0.14
Western	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department's OC Compounds Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, U.S. EPA Established on March 26, 2012

Final OC Compounds WLA

In the Puddingstone Reservoir watershed, WLAs are required for all permittees in the northern subwatershed and the Department’s areas in the southern subwatershed. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below.

Final OC Compounds WLA Specific to the Department

The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Total PCBs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.59	0.17
Southern	Department	State Highway Storm water	0.59	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.75	0.57
Southern	Department	State Highway Storm water	0.75	0.57

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.57
Southern	Department	State Highway Storm water	3.24	0.57

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.94	0.59
Southern	Department	State Highway Storm water	3.94	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	5.28	0.59
Southern	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.22	0.14
Southern	Department	State Highway Storm water	0.22	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department

See tables above.

Final OC Compounds Deadlines

U.S. EPA did not establish deadlines.

Department’s OC Compounds Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to pollutant loading is not known.

Los Angeles River Watershed Metals TMDL, September 6, 2007

Final Metals WLA

This TMDL includes wet-weather and dry-weather WLAs for copper, lead, and zinc. Wet-weather conditions are when the maximum daily flow of the Los Angeles River is greater than or equal to 500 cfs. Dry-weather conditions are where maximum daily flow is less than 500 cfs; critical flows are also listed for each of the reaches in this TMDL.

Final Metals WLA Specific to the Department

For dry-weather conditions, the Department is assigned grouped WLAs with other MS4 permittees.

WERs are explicitly included in these WLAs, but default to a value of 1 (unit less) unless site-specific values are approved by the Regional Water Board. Concentration-based limits are also allowed for dry weather due to the expense of obtaining accurate flow measurements; in this case, the concentration-based limits are equal to dry-weather reach-specific dry-weather numeric targets.

Final Mass-based Dry-weather WLAs for Storm water and MS4s, Total Recoverable Metals

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 6	7.20	0.53 x WER	0.33 x WER	-
LAR 5	0.75	0.05 x WER	0.03 x WER	-
LAR 4	5.13	0.32 x WER	0.12 x WER	-

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 3	4.84	0.06 x WER	0.03 x WER	-
LAR 2	3.86	0.13 x WER	0.07 x WER	-
LAR 1	2.58	0.14 x WER	0.07 x WER	-
Bell Creek	0.79	0.06 x WER	0.04 x WER	-
Tujunga Wash	0.03	0.001x WER	0.0002xWER	-
Burbank Channel	3.3	0.15 x WER	0.07 x WER	-
Verdugo Wash	3.3	0.18 x WER	0.10 x WER	-
Arroyo Seco	0.25	0.01 x WER	0.01 x WER	-
Rio Hondo Reach 1	0.50	0.01 x WER	0.006 x WER	0.16 x WER
Compton Creek	0.90	0.04 x WER	0.02 x WER	-

Note: All WERs are equal to 1 (unit less)

Final Concentration-based reach-specific numeric targets, total recoverable metals

Waterbody	Copper (µg/L)	Lead (µg/L)	Zinc (µg/L)
LA River Reach 6	WER ¹ * 30	WER ¹ * 19	-
LA River Reach 5	WER ¹ * 30	WER ¹ * 19	-
LA River Reach 4	WER ² * 26	WER ¹ * 10	-
LA River Reach 3 above LA-Glendale WRP	WER ² * 23	WER ¹ * 12	-
LA River Reach 3 below LA-Glendale WRP	WER ² * 26	WER ¹ * 12	-
LA River Reach 2	WER ² * 22	WER ¹ * 11	-
LA River Reach 1	WER ² * 23	WER ¹ * 12	-
Bell Creek	WER ¹ * 30	WER ¹ * 19	-
Burbank Western Channel (above WRP)	WER ² * 26	WER ¹ * 14	-
Burbank Western Channel (below WRP)	WER ² * 19	WER ¹ * 9.1	-
Verdugo Wash	WER ² * 23	WER ¹ * 12	-
Compton Creek	WER ¹ * 19	WER ¹ * 8.9	-
Arroyo Seco	WER ² * 22	WER ¹ * 11	-
Rio Hondo Reach 1	WER ¹ * 13	WER ¹ * 5.0	WER ¹ * 131
Monrovia Canyon	-	WER ¹ * 8.2	-

Note:
¹ WER is equal to 1 (unit less)
² WER for this constituent in this reach is 3.96

Wet-weather allocations are apportioned among storm water permit holders based on percent area of the watershed served by storm drains.

Final Mass-based wet-weather WLAs, Total Recoverable Metals

Metal	Waste Load Allocation (kg/day) Total Recoverable
Cadmium	WER * 5.3 * 10 ⁻¹¹ * daily volume (L) – 0.03
Copper	WER * 2.9 * 10 ⁻¹⁰ * daily volume (L) – 0.2
Lead	WER * 1.06 * 10 ⁻⁰⁹ * daily volume (L) – 0.07
Zinc	WER * 2.7 * 10 ⁻⁰⁹ * daily volume (L) – 1.6

Final Metals Deadlines

By January 11, 2024, the jurisdictional group shall demonstrate that 100 percent of the group’s total drainage area served by the storm drain system is effectively meeting the dry-weather WLAs and 50 percent of the group’s total drainage area served by the storm drain system is effectively meeting the wet-weather WLAs. By January 11, 2028, the jurisdictional group shall demonstrate that 100 percent of the group’s total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs. MS4s and the Department may meet the TMDL using a phased implementation approach using a combination of structural and non-structural BMPs.

Department’s Metals Contribution (relative contribution to pollutant loading)

Unknown

Los Cerritos Channel Metals TMDL, March 17, 2010

Final Metals WLA

This TMDL assigns the Department wet-weather WLAs for copper, lead and zinc and a dry-weather WLA for copper only. Wet weather is defined as where the maximum daily flow of Los Cerritos Channel is greater than 23 cfs, and dry weather is where the maximum daily flow of the Channel is less than 23 cfs. For dry-weather copper targets, a site-specific translator was used, defined as the median value of the ratio of direct measurements to CTR criteria. Only the Department and other MS4s have a mass-based WLA for copper for dry weather, and this is divided among permittees based on estimates of respective percentage of total watershed area.

Final mass-based wet-weather WLAs are divided among the Department, other MS4 permittees, General Construction permittees and General Industrial permittees based on an estimate of the percentage of land area covered under each permit. The Department’s estimated percent area of the watershed is 0.8 percent.

Final Metals WLA Specific to the Department

Copper Dry-weather WLA, Total Recoverable Metal	
Copper	1.0 g/day

Metals Wet-weather WLAs, Total Recoverable Metal (V is daily flow volume in liters)		
Copper g/day	Lead g/day	Zinc g/day
$0.070 * V * 10^{-6}$	$0.397 * V * 10^{-6}$	$0.680 * V * 10^{-6}$

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL, and as such implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures for this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department's Metals Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the metals pollutant loading is not known.

Machado Lake Pesticides and PCBs TMDL, March 20, 2012

The point sources of pesticides and PCBs into Machado Lake are storm water and urban runoff discharges including those from the Department's MS4. Storm water and urban runoff dischargers to Machado Lake occur through the following sub-drainage systems: Wilmington Drain, Project 77 and Project 510.

Final Pesticides and PCBs WLA

The following WLAs apply to all point sources:

Pollutants	WLAs (ug/kg dry weight)
Total PCBs	59.8
DDT (all congeners)	4.16
DDE (all congeners)	3.16
DDD (all congeners)	4.88
Total DDT	5.28
Total Chlordane	3.24
Dieldrin	1.9

Final Pesticides and PCBs WLA Specific to the Department

See table above.

Final Pesticides and PCBs Deadlines

The TMDL WLAs are applied with a three-year averaging period and shall be incorporated into MS4 permits, including the Department's MS4 permit, and general construction and industrial storm water NPDES permits and any other non-storm water NPDES permits.

Storm water dischargers may coordinate compliance with the TMDL. Permitted storm water dischargers can implement a variety of implementation strategies to meet the required WLAs, such as non-structural and structural BMPs, and/or diversion and treatment to reduce sediment transport from the watershed to the lake. Compliance with the TMDL may be based on a coordinated Monitoring and Reporting Program. The Department is subject to the prescribed point source WLAs with a final compliance date of September 30, 2019.

Department’s Pesticides and PCBs Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Marina Del Rey Harbor Toxics Pollutants TMDL, March 26, 2006

Final Toxic Pollutant WLAs

The Department is assigned mass-based WLAs for copper, lead and zinc along with other storm water permittees in the watershed. The Copper, Lead, and Zinc WLAs are apportioned between the permittees based on an estimate of the percentage of land area covered under each permit.

Total Mass-based Storm Water Metal WLAs:

Copper (kg/yr)	Lead (kg/yr)	Zinc (kg/year)
2.06	2.83	9.11

Total Mass-based Storm Water Organics WLAs:

Total Chlordane (g/yr)	Total PCBs (g/yr)
0.03	1.38

Final Toxic Pollutants WLAs Specific to the Department

Mass-based Metals WLAs for Caltrans

Copper (kg/yr)	Lead (kg/yr)	Zinc (kg/year)
0.022	0.03	0.096

Mass-based Organics WLAs for the Department:

Total Chlordane (g/yr)	Total PCBs (g/yr)
0.0003	0.015

Final Toxic Pollutant Deadlines

The implementation schedule for the MS4 permittees and the Department consists of a phased approach. A combination of non-structural and structural BMPs may be used to achieve compliance with the WLAs, with compliance to be achieved in prescribed percentages of the watershed. Total compliance is to be achieved within 10 years or March 22, 2016. However, the Regional Board may extend the implementation period up to 15 years or March 22, 2021, if an integrated water resources approach is employed.

Department Toxic Pollutant Contribution (relative contribution to pollutant loading)

The Department is assigned approximately one percent of the WLA for each pollutant, based on an estimate of area within the watershed.

San Gabriel River Metals & Selenium TMDL, U.S. EPA Established on March 26, 2007

Final Metals WLA

The Department is assigned WLAs for dry-weather and wet-weather for copper, lead and zinc (as well as selenium). For San Gabriel River Reach 2, the critical flow for wet weather is 260 cfs; for Coyote Creek, the critical flow is 156 cfs. The combined storm water WLA is allocated to individual permits based on percent area of the developed portion of the watershed.

For dry-weather copper, all MS4 storm water permittees, including the Department, are assigned concentration-based WLAs specific to San Gabriel River Reach 1, Coyote Creek, and the San Gabriel River Estuary.

Dry-weather Concentration-Based Copper WLAs for Storm water Permittees

Waterbody	Concentration-based WLA (µg/L)
Estuary	3.7
San Gabriel Reach 1	18
Coyote Creek	20

The TMDL establishes wet-weather WLAs to San Gabriel River Reach 2 for lead, and the Department is part of a grouped mass-based WLA. For Coyote Creek, mass-based WLAs are applied to copper, lead, and zinc. These WLAs are further divided among municipal storm water, industrial storm water, and construction storm water permits that are expressed as an area-based proportion of the total WLA. The Department and other MS4s share WLAs because there are not enough data on the relative reach-specific extent of these permittees' areas. The mass-based WLAs for the grouped Department's and MS4s are defined as the

daily storm volume times the numeric target of the metal for the waterbody times the estimated percentage of watershed covered by these permits.

WLAs for San Gabriel River Reach 2, Coyote Creek and to all of their respective Tributaries

Reach	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
San Gabriel Reach 2	--	Daily storm vol * 166 µg/L * 49%	--
Coyote Creek	Daily storm vol * 27 µg/L * 91.5%	Daily storm vol * 106 µg/L * 91.5%	Daily storm vol * 158 µg/L * 91.5%

Final Metals WLA Specific to the Department

No specific WLAs.

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL, and implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures or this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s contribution to the metals loads is not known.

Santa Monica Bay PCBs and DDTs TMDLs, U.S. EPA Established on March 26, 2012

Final PCBs and DDTs WLA

The grouped WLAs are apportioned to the Los Angeles County MS4 permit, the Department’s MS4 permit, and enrollees under the general construction and industrial storm water permits. Mass-based WLAs are to be partitioned among the four groups based on the percent area of each major group in the watersheds draining to Santa Monica Bay. Permittees covered under the general construction and storm water permittees are not expected to perform individual sampling; instead, monitoring should be conducted on a coordinated, watershed-wide basis consistent with the WLAs in the TMDL. The establishment of watershed efforts to identify and address sources of DDTs and PCBs within the watersheds and reporting of the total storm water loadings of DDT and PCB to Santa Monica Bay is encouraged.

The analysis of DDT and PCBs on suspended particle loadings from the mass emission stations will provide more robust measures of mass loadings. If additional data indicate that existing storm water loadings differ from the storm water WLAs defined in the TMDL, the Los Angeles Regional Water Board should consider re-opening the TMDL to better reflect actual loadings.

BMPs and pollutant removal are the most suitable courses of action to reduce DDT and PCBs in the Santa Monica Bay Watershed. Attention should be focused on those watersheds with the highest potential loadings to Santa Monica Bay, such as those that are more heavily urbanized. BMPs should also be targeted to reduce potential PCB loads from industrial and construction runoff as studies have shown that these may be a major source of PCBs. U.S. EPA also recommends implementation of a PCB Source Identification and Control program within storm water permits to evaluate and identify controllable sources of PCBs.

Final PCBs and DDT WLAs Specific to the Department

Final PCBs and DDTs WLAs

Total PCBs (g/yr)	Total DDTs (g/yr)
3.9	0.75

Final PCBs and DDTs Deadlines

U.S. EPA recommends that storm water WLAs be evaluated based on a three year averaging period. This will provide more robust assessment for compliance and should smooth out variability due to wet years. This is consistent with timeframes provided for the Los Angeles Harbor/Long Beach TMDL.

Department’s PCBs and DDTs Contribution (relative contribution to pollutant loading)

The footprint of the Department’s MS4 is 2.7 percent of the area within the Santa Monica Bay watersheds.

SANTA ANA REGION METALS/TOXICS/PESTICIDES TMDLS

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Final Chromium WLA

For Rhine Channel, the final Chromium WLA is 7.44 kg/yr in sediment.

Final Chromium WLA Specific to the Department

The final mass-based Chromium WLA for the Department is 0.89 kilograms/year in sediment.

Final Chromium Deadlines

The Santa Ana Regional Water Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed.

Department’s Chromium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the Chromium loading is approximately three percent of the total, based on area.

San Diego Creek and Newport Bay, including Rhine Channel Metals (Copper and Zinc) TMDL, U.S. EPA Established on June 14, 2002

Final Metals WLA

WLAs are established for cadmium, copper, lead and zinc in the San Diego Creek watershed, for cadmium, copper, lead and zinc in Newport Bay, and for cadmium, copper, lead, zinc and chromium (and mercury) in Rhine Channel. San Diego Creek is a fresh water stream, while Newport Bay and Rhine Channel are saltwater.

Final Metals WLA Specific to the Department

For San Diego Creek, the Department is assigned concentration-based WLAs for cadmium, copper, lead, and zinc. There are no wet-weather or dry-weather WLAs, but there are four sets of WLAs for each metal for four different flow tiers. All flow tiers have an acute and chronic WLA, except for the highest flow tier, which only has an acute WLA.

Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers, µg/L

Metal	< 20 cfs); H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cu	50	29.3	40	24.3	30.2	18.7	25.5
Pb	281	10.9	224	8.8	162	6.3	134
Zn	379	382	316	318	243	244	208

* Applies to Upper Newport Bay Only

For Newport Bay, mass-based WLAs for cadmium, copper, lead and zinc were assigned to the Department. These WLAs were developed on estimates made using Best Professional Judgment because insufficient data were available to accurately estimate relative contributions to existing loads. The Department's share of the estimated loads is based on the relative proportion of watershed land area among the Department and adjacent permit-holders.

Final mass-based WLAs in Newport Bay, Dissolved Metals

Metal	Cu	Pb	Zn
Total	423 lbs/yr	2,171 lbs/yr	22,866 lbs/yr

Additional concentration-based limits apply only to sources which discharge directly to the Bay, including storm water dischargers from storm drains direction to Bay segments.

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cu	4.8	3.1
Pb	210	8.1
Zn	90	81
* Applies to Upper Newport Bay Only		

Final Metals Deadlines

U.S. EPA did not include implementation measures for the TMDL.

Department’s Metals Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the metals pollutant loading is not known.

San Diego Creek and Upper Newport Bay Cadmium TMDL, U.S. EPA Established on June 14, 2002

Final Cadmium WLA

Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers

Metal	< 20 cfs; H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cd (µg/L)	19.1	6.2	15.1	5.3	10.8	4.2	8.9
* Applies to Upper Newport Bay Only							

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cd	42	9.3
* Applies to Upper Newport Bay Only		

Final Cadmium WLA Specific to the Department

See Table above.

Final Cadmium Deadlines

U.S. EPA did not include implementation measures for the TMDL.

Department’s Cadmium Contribution

The Department’s relative contribution to the cadmium pollutant loading is not known.

San Diego Creek Watershed, Organochlorine Compounds and PCBs TMDLs, November 12, 2013

Final OC Compounds WLA

The Department is listed as a primary source of pollutant loads to the San Diego Creek watershed. The mass-based WLAs were expressed as both daily and annual values. Pollutants include Total DDT, Chlordane, Total PCBs and Toxaphene.

WLAs Expressed as a Daily Value (grams/day)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
San Diego Creek	Department (11%)	0.11	0.07	0.03	0.002
WLAs Expressed as a Annual Value (grams/year)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
San Diego Creek	Department (11%)	39.2	25.2	12.4	0.6

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department’s OC Compounds Contribution (relative contribution to pollutant loading)

Based upon the percentage of the total urban land use comprised by Urban-Roads, Department’s facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

Upper & Lower Newport Bay Organochlorine Compounds TMDL, November 12, 2013

Final OC Compounds WLA

Upper Newport Bay and Lower Newport Bay OC Compounds WLAs

WLAs Expressed as a Daily Value (grams/day)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
Upper Newport Bay	Department (11%)	0.04	0.03	0.02	-
Lower Newport Bay	Department (11%)	0.02	0.01	0.07	-

WLAs Expressed as a Annual Value (grams/year)					
Watershed	Input	Total DDT	Chlordane	Total PCBs	Toxaphene
Upper Newport Bay	Department (11%)	15.8	9.2	9.1	-
Lower Newport Bay	Department (11%)	5.8	3.4	23.9	-

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department's OC Compounds Contribution (relative contribution to pollutant loading)

Based upon the percentage of the total urban land use comprised by Urban-Roads, Department's facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

SAN DIEGO REGION METALS TMDL

Chollas Creek Dissolved Copper, Lead and Zinc TMDLs, December 18, 2008

Final Metals WLA

WLAs are concentration-based and set as the acute and chronic limits in the California Toxics Rule times 90 percent for all permitted dischargers, in units of µg/L, as dissolved metals. The final WLAs are based on statistical measures of hardness used in calculating permit requirements.

Final Concentration-based WLAs

Chollas Creek, Copper, Lead, and Zinc WLAs, Dissolved Metal

Metal	Numeric Target for Acute Conditions: Criteria Maximum Concentration, (µg/L)	Numeric Target for Chronic Conditions: Criteria Continuous Concentration, (µg/L)
Copper	$(1) * (0.96) * \{e^{[0.9422 * \ln(\text{hardness}) - 1.700]}\} * 0.9$	$(1) * (0.96) * \{e^{[0.8545 * \ln(\text{hardness}) - 1.702]}\} * 0.9$
Lead	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 1.460]}\} * 0.9$	$(1) * \{1.46203 - [0.145712 * \ln(\text{hardness})]\} * \{e^{[1.273 * \ln(\text{hardness}) - 4.705]}\} * 0.9$
Zinc	$(1) * (0.978) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\} * 0.9$	$(1) * (0.986) * \{e^{[0.8473 * \ln(\text{hardness}) + 0.884]}\} * 0.9$

Final Metals WLA Specific to the Department

There are no WLAs specific to the Department.

Final Metals Deadlines

The Department along with other responsible parties must meet 100 percent of Chollas Creek Metals TMDL WLA reductions by December 18, 2028.

Department's Contribution *(relative contribution to pollutant loading)*

The Department's contribution to the metal loads is not known.

D. Trash TMDL Pollutant Category

General Description of Pollutant Category

As discussed under the ten individual TMDLs below, the TMDLs in the trash pollutant category establish that the Department varies in the significance of a source of trash and debris. The scale of the Department as a source depends on the magnitude and location of the impacted water body and corresponding land uses. For the individual TMDLs, the Department is not the sole responsible party for source of trash and debris. Other point source responsible parties include Los Angeles County MS4 permittees, Ventura County MS4 permittees, and industrial permittees.

Since trash generation rates are dependent on land use, the requirements for the Department in Attachment IV Section III.D.1 focus on significant trash generating areas. These areas include: highway on- and off-ramps in high density residential, commercial and industrial land uses, rest areas and park-and-rides, state highways in commercial and industrial land uses, and mainline highway segments to be identified by the Department through pilot studies and/or surveys. The requirements in Attachment IV are expected to address the highest source of trash from the Department by focusing management practices on the highest problem areas.

Attachment IV Section III.D.1 establishes a prohibition of discharge of trash to receiving waters. All of the individual TMDLs set a numeric target of zero trash, since the receiving water body lacks an assimilative capacity for any piece of the trash. Attaining the numeric target is difficult due to the transport mechanisms of the trash, specifically for the Department whose users are temporary and transitory. Attachment IV Section III.D.2 sets forth two compliance options to achieve the prohibition of discharge. The compliance options focus on implementation of management practices, treatment controls, and institutional controls in the significant trash generating areas and the coordination with neighboring municipalities to implement treatment and institutional controls in significant trash generating areas and priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations).

Sources of Pollutant & How it Enters the Waterway

Trash and debris are the man-made products that are improperly discarded and transported to surface water bodies. Trash is considered a 'gross pollutants' and excludes sediments, oil and grease, and vegetation. Trash can include cigarette butts, paper, fast food containers, plastic grocery bags, cans and bottles, used diapers, construction site debris, industrial plastic pellets, old tires and appliances. Trash and debris cause impairments to beneficial uses of surface water bodies, including rivers, lakes, enclosed bays and estuaries, and ocean waters.

Watershed Contribution

Trash impacts aquatic habitat and life. Mammals, turtles, birds, fish, and crustaceans are threatened following the ingestion or entanglement of trash. Ingestion and entanglement can be fatal for freshwater, estuarine, saline and marine aquatic life. Similarly, habitat alterations and degradations due to trash can make natural habitats unsuitable for spawning, migration, and preservation of aquatic life. These negative effects of trash to aquatic life can impact several beneficial uses. The aquatic life beneficial uses that can be impacted by negative effects of trash include: Warm Freshwater Habitat (WARM); Cold Freshwater habitat (COLD); Inland Saline Water Habitat (SAL); Estuarine Habitat (EST); Marine Habitat (MAR); Wildlife Habitat (WILD); Preservation of Biological Habitats (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wetland Habitat (WET).

Trash impacts human activity by means of jeopardizing public health and safety and posing harm and hindrance in recreational, navigational, and commercial activities. The human

beneficial uses impacted by trash and debris include: Navigation (NAV); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Aquaculture (AQUA); Shellfish Harvesting (SHELL); and Industrial Service Supply (IND).

Trash and debris, which is intentionally or accidentally discarded in watershed drainage areas, enter a water body through a transport mechanism. Transport mechanisms include the following:

1. Storm drains: trash is deposited throughout the watershed and is carried to a water body during and after significant rainstorms through storm drains.
2. Wind/wave action: trash can also blow into the waterways directly.
3. Direct disposal: direct dumping of trash to water body.

The amount and type of trash and debris that is washed into the storm drain system is generally a function of the surrounding land use. It is generally accepted that commercial, industrial, high density residential land use contribute larger loads of gross pollutants per area compared to low residential and open space and park land use areas.

Control Measures

Full capture system is a type of treatment control that is a device or series of devices that traps all particles that are 5 mm or greater and has a design treatment capacity that is not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area. For the Department, there are three types of full capture systems that fall under the category of Gross Solids Removal Devices (GSRDs). Gross Solids Removal Devices (GSRDs) were developed by the Department to be retrofitted into existing highway drainage systems or implemented in future highway drainage systems. GSRDs are structures that remove litter and solids five mm and larger from the storm water runoff using various screening technologies. Overflow devices are incorporated, and the usual design of the overflow release device is based upon the design storm for the roadway. Though designed to capture litter, the devices can also capture some of the vegetation debris. The devices shown below are generally limited to accept flows from pipes 30 inches in diameter and smaller.

The three types of potential GSRDs the Department could utilize are linear radial and two versions using an inclined screen. A linear radial device is relatively long and narrow, with flow entering one end and exiting the other end. It is suited for narrow and flat rights-of-way with limited space. It utilizes modular well screen casings with 5 mm louvers and is contained in a concrete vault, although it also could be attached to a headwall at a pipe outfall. While runoff flows enter into the screens, they pass radially through the louvers and trap litter in the casing. A smooth bottom to convey litter to the end of the screen sections is required, so a segment of the circumference of each screen is uncovered. The louvered sections have access doors for cleaning by vacuum truck or other equipment. Under most placement conditions the goal would be to capture within the casing one year's volume of

litter. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged.

Two Inclined Screen Devices have also been developed. Each device requires about 1-meter of hydraulic head and is better suited for fill sections. In the Type 1 device, the storm water runoff flows over the weir and falls through the inclined bar rack. The screen has five-mm maximum spacing between the bars. Flow passes through the screen and exits via the discharge pipe. The trough distributes influent over the inclined screen. Storm water pushes captured litter toward the litter storage area. The gross solids storage area is sloped to drain to prevent standing water. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged. It has a goal of litter capture and storage for one year. The Type 2 Inclined Screen only comes in a sloped sidewall version.

Full capture devices and treatment controls are highly effective to capture and retain trash when properly maintained. However, there are locations that might be infeasible to install treatment controls. The Department may elect to employ institutional controls, which are non-structural best management practices that may include street sweeping and anti-litter education and outreach programs. Street sweeping minimizes trash loading to the river by removing trash from streets and curbs. Maintaining a regular street sweeping schedule reduces the buildup of trash on streets and prevents trash from entering catch basins and the storm drain system. Street sweeping can also improve the appearance of roadways. There are at least three types of street sweepers the Department may employ: 1) mechanical, 2) vacuum filter, and 3) regenerative air sweepers. Public education can be an effective implementation alternative to reduce the amount of trash entering water bodies. The public is often unaware that trash littered on the street ends up in receiving waters, much less the cost of abating it. The Department may elect to continue to participate in educational programs like 'Adopt-A-Highway' and 'Don't Trash California'.

As specified in Attachment IV Section III.D.3, the Department shall submit an annual status report of the selected treatment and institutional control measures implemented to comply with the prohibition of discharge of trash. In addition to the annual status report, the Department should conduct a pilot survey to further determine highway characteristics and sections that should be included in the category of significant trash generating areas. The pilot study will further assure compliance with the prohibition of discharge and reduction of trash to receiving water bodies from high trash generation areas from the Department's jurisdiction.

LOS ANGELES REGION TRASH TMDLS

Ballona Creek Trash TMDL, August 1, 2002 and February 8, 2005

Final WLA

The numeric target for this TMDL is zero trash in the water. Storm drains were identified as a major source of trash. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final WLA Specific to the Department

The Department is assigned the following baseline WLAs of trash.

Weight (lbs/mile ²)	Volume (ft ³ /mile ²)
7479.36	892.64

Final Deadlines

The implementation schedule for the MS4 and the Department permittees consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within twelve years from the effective date of the TMDL (September 30, 2015).

Department's Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 13 percent.

Legg Lake Trash TMDL, February 27, 2008

Final WLA

The numeric target for this TMDL is zero trash in Legg Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Legg Lake. WLAs were assigned to the permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLAs assuming a trash generation rate of 6677 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.09	586.92

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years from the effective date of the TMDL (March 6, 2016).

Department’s Trash Contribution (relative contribution to pollutant loading)

The Department’s Baseline WLA relative to all other point sources (municipal permittees) is 7.9 percent.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA

The numeric target for this TMDL is zero trash in Echo Park Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

The Department is estimated to have the following baseline WLAs assuming a trash generation rate of 6,677 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Current Point Source Trash Load (gal/yr)
0.022	150

Final Trash WLA Specific to the Department

No WLAs were assigned to the Department.

Final Trash Deadlines

There is no compliance and implementation schedule for the Echo Park Lake Trash TMDL.

Department’s Trash Contribution (relative contribution to pollutant loading)

As there is no assigned WLA, the Department’s contribution to the estimated point source trash loads is 16.7 percent.

Los Angeles Area (Peck Road Park) Lake Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA

The numeric target for this TMDL is zero trash in Peck Road Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

No WLAs were assigned to the Department.

Final Trash Deadlines

There is no compliance and implementation schedule for the Peck Road Park Lake Trash TMDL.

Department’s Trash Contribution (relative contribution to pollutant loading)

As there are no assigned WLAs, the Department’s contribution to the estimated point source trash loads is 3.9 percent or 950 gal/yr.

Los Angeles River Trash TMDL, December 24, 2008

Final Trash WLA

The numeric target for the Los Angeles River Watershed Trash TMDL is zero trash in the water. Storm drains were identified as a major source of trash in the Los Angeles River. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLAs for trash.

WLA (gal)	WLA (lbs)
59421	66,566

Final Trash Deadlines

The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within seven years from the effective date of the TMDL (September 30, 2014).

Department’s Trash Contribution (relative contribution to pollutant loading)

The Department’s Baseline WLA relative to all other point sources (municipal permittees) is 11.8 percent.

Machado Lake Trash TMDL, February 27, 2008

Final Trash WLA

The numeric target for this TMDL is zero trash in Machado Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Machado Lake. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLA assuming a trash generation rate of 5,334 (gallons of uncompressed litter per mile² per year).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.63	4,215.84

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 4.5 percent.

Malibu Creek Watershed Trash TMDL, June 26, 2009

Final Trash WLAs

The numeric target for the Malibu Creek Watershed Trash TMDL is zero trash in or on the water and on the shoreline. For point sources, zero means that no trash is discharged into the water body of concern, shoreline, and channels. Both point source and nonpoint sources of trash were identified in the water bodies in the Malibu Creek Watershed. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.32	10,813

Final Trash Deadlines

The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (July 7, 2017).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 65.5 percent.

Revolon Slough and Beardsley Wash Trash TMDL, August 1, 2002, February 8, 2005, and February 27, 2008

Final Trash WLA

The numeric target for the Revolon Slough and Beardsley Wash TMDL is zero trash within Revolon Slough, Beardsley Wash and their tributaries. Both point source and nonpoint sources of trash were identified in the Revolon Slough and Beardsley Wash. For point sources, WLAs were assigned to permittees of the Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following WLA (gal/year) assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile²)	Baseline WLA (gal/yr)
1.68	11,215.45

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 64.1 percent.

Santa Monica Bay Nearshore & Offshore Debris (trash and plastic pellets), March 20, 2012

Final Trash WLA

The numeric target for the Santa Monica Bay Debris TMDL is zero trash in Santa Monica Bay. For point sources, zero trash is defined as no trash discharged into water bodies within the Santa Monica Bay Watershed and into Santa Monica Bay or on the shoreline of Santa Monica Bay. For nonpoint sources, zero trash is defined as no trash on the shoreline or beaches, or in harbors adjacent to Santa Monica Bay. The numeric target for plastic pellets in the Santa Monica Bay Debris TMDL is zero plastic pellets in Santa Monica Bay. Both point source and nonpoint sources of trash were identified in Santa Monica Bay Nearshore and Offshore areas. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Baseline WLA for the Department was based on a trash generation rate of 33,452.8 gallons per mile² per year.

Point Source Area (mile ²)	Baseline WLA (gal/year)
1.08	36,129.0

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 12, 2020).

Department's Trash Contribution (relative contribution to pollutants)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 32.8 percent.

Ventura River Estuary Trash TMDL, February 27, 2008

Final Trash WLA

The numeric target for the Ventura River Estuary Trash TMDL is zero trash in or on the water and on the shoreline. Both point source and nonpoint sources of trash were identified in the Ventura River Estuary.

Final Trash WLA Specific to the Department

The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile ²)	Baseline WLA (gal/yr)
0.31	2,049.86

Final Trash Deadlines

The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 8, 2016).

Department's Trash Contribution (relative contribution to pollutants)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 34.8 percent.

E. Bacteria TMDL Pollutant Category

General Description of Pollutant Category

Receiving waters are often adversely affected by urban storm water runoff containing bacteria. Several reaches and tributaries have been impaired due to excessive amounts of coliform bacteria. There is a causal relationship between adverse health effects and recreational water quality, as measured by bacterial indicator densities. Fecal coliform bacteria may be introduced from a variety of sources including storm water runoff, dry-weather runoff, onsite wastewater and animal wastes. In addition, humans may be exposed to waterborne pathogens through recreation water use or by harvesting and consuming filter-feeding shellfish.

Attachment IV of this permit requires the Department to prioritize reaches, including those within watersheds under a bacteria TMDL, and then further to select each year the reaches for implementing control measures to address the highest priority reaches.

Sources of Pollutant & How it Enters the Waterway

Major contributors are flows and associated bacteria loading from storm water conveyance systems. The extent of bacteria loading from natural sources such as birds, waterfowl and other wildlife, however, are unknown as data does not exist to quantify the impact of wildlife on the waterbodies.

Watershed Contribution

The TMDLs in the Bacteria Pollutant Category show that the Department is a relatively minor source of pollutants.

Control Measures

This prioritization strategy will control the largest sources of bacteria first and allow for attainment of the applicable WLAs consistent with the bacteria TMDLs identified in Part E of Attachment IV. The Department must install structural and nonstructural controls utilizing BMPs to variously control dry weather discharges and wet weather discharges.

The Department has options that would be effective for controlling non-storm water runoff during dry weather. The Department is required to implement control measures to ensure that the effective prohibition of non-storm water discharges is implemented. This can be achieved through infiltration, diversion, or other methods. Generally, there should be no flow from areas during dry weather. Overwatering, broken sprinklers and irrigation pipes can be a source of dry weather flows. The Department can limit dry weather discharges by ensuring that broken sprinklers and irrigation pipes are fixed within 72 hours. To control overwatering and the resulting runoff, the Department could review watering schedules for irrigated areas on an annual basis.

To control runoff during wet weather, the Department should work with responsible agencies to jointly comply with the TMDL whenever possible. If the Department does not work with the other responsible agencies, non-structural and structural BMPs would be necessary.

Increasing infiltration through the slowing of runoff and improving soil structure and texture to encourage infiltration of storm water are non-structural ways to reduce runoff. In addition, structural BMPs like biofiltration strips, biofiltration swales and detention basins can work in concert with the non-structural BMPs to capture of the runoff.

Wet-weather flows for the most part impact water contact recreation beneficial uses (REC-1). The Department shall implement control measures to prevent or eliminate the discharge of bacteria from its ROW through a combination of source control and treatment BMPs. These treatment BMPs shall include retention/detention, infiltration, diversion of storm water or through preemptive activities such as sweeping, clean-up of illegal dumping, and public education on littering.

SAN FRANCISCO BAY BACTERIA TMDLS

Richardson Bay Pathogens TMDL, December 18, 2009

The TMDL identifies storm water runoff as a potential pathogen source, along with sanitary sewer systems and houseboats and vessel marinas. The Department is listed in the storm water runoff source category along with other implementing parties.

Final Pathogens WLA

The WLA for Fecal Coliform in the pollutant category of storm water runoff is a median of < 14 MPN/100 ml and a 90th percentile limit of <43 MPN/100 ml (no more than 10 percent of total samples during any 30-day period may exceed this number)

The implementation plan for storm water runoff has the following actions:

1. Implement applicable storm water management plan.
2. Update/amend storm water management plan, as appropriate, to include specific measures to reduce pathogen loading, including additional education and outreach efforts, and installation of additional pet waste receptacles.
3. Report progress on implementation of pathogen reduction measures to the Water Board.

For most pollutants, TMDLs are expressed on a mass-load basis (e.g., kilograms per year). For pathogen indicators such as fecal coliform, however, it is the number of organisms in a given volume of water (i.e., their density), and not their total number (or mass) that is significant with respect to public health risk and protection of beneficial uses. The density of fecal coliform organisms in a discharge and/or in the receiving waters is the technically relevant criteria for assessing the impact of discharges, water quality, and public-health risk. U.S. EPA guidance recommends establishing density-based TMDLs for pollutants that are not readily controllable on a mass basis. Therefore, we propose density-based TMDLs and pollutant load allocations, expressed in terms of fecal coliform concentrations.

Establishment of a density-based, rather than a mass-based, TMDL carries the advantage of eliminating the need to conduct a complex and potentially error-prone analysis to link loads and projected densities. A load-based pathogens TMDL would require calculation of acceptable loads based on acceptable bacterial densities and anticipated discharge volumes, and then back-calculation of expected densities under various load reduction scenarios. Since discharge volumes in Richardson Bay are highly variable and difficult to measure, such an analysis would inevitably involve a great deal of uncertainty with no increased water quality benefit.

Pathogen WLA Specific to the Department

As stated in the TMDL, the Department's wasteload allocations for discharges from municipal separate storm sewers are set by NPDES permits No. CAS000004 [Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)] and CAS000003 (National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State Of California Department Of Transportation).

Final Pathogens Deadline

The completion date for these implementation actions is "as specified in approved storm water management plan and in applicable NPDES permit." Region 2 does not anticipate that the Department's storm water management plan will need to be revised because they believe that the source of bacteria in highway runoff is wildlife.

The TMDL also notes that in 2013, the Water Board will evaluate monitoring results and assess progress towards attaining TMDL targets and load allocations.

Department's Pathogens Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pathogen pollutant loading is not known.

San Pedro and Pacifica State Beach Bacteria TMDL, August 1, 2013

The San Pedro and Pacifica State Beach Bacteria TMDL was developed by the San Francisco Bay Regional Water Quality Control Board and approved by U.S. EPA on August 1, 2013. The TMDL identifies sanitary sewer systems, horse facilities and municipal storm water runoff and dry weather flows as sources that have the potential to discharge bacteria, if not properly managed, to San Pedro Creek and Pacifica State Beach.

Final Bacteria WLA

The TMDL established a desired, or target condition for the water contact recreation use in San Pedro Creek and at Pacifica State Beach based on the water quality objectives for indicator bacteria. The wasteload allocations are based on the water quality objectives shown in the table below:

Bacteriological Water Quality Objectives for San Pedro Creek and Pacifica State Beach		
Indicator Type	Pacifica State Beach (Marine REC-1) MPN/100 mL	San Pedro Creek (Freshwater REC-1) MPN/100 mL¹
	Single Sample Maximum	90th Percentile/No Sample Greater Than
E. coli	NA	235
Fecal Coliform	400	400
Enterococcus	104	NA
Total Coliform	10,000 ²	10,000
	Geometric Mean³	Geometric Mean/Log Mean/Median
E. coli	NA	
Fecal Coliform	200	126
Enterococcus	35	200
Total Coliform	1,000	NA 240
Notes:		
1. Based on a minimum of five consecutive samples equally spaced over a 30-day period.		
2. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.		
3. Calculated based on the five most recent samples from each site during a 30-day period.		
NA: not applicable.		

For this TMDL, a reference system and antidegradation approach has been incorporated the wasteload allocations as an allowable number of times that the water quality objectives can be exceeded. The following table lists the allowable exceedances:

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		Pacifica State Beach		
	Dry Weather	Wet Weather⁵	Summer Dry Weather (Apr. 1 - Oct. 31)	Winter Dry Weather (Nov. 1 - Mar. 31)	Wet Weather⁵
Allowable Exceedances of Single- Sample Objectives (assuming daily sampling is conducted) ^{1,2,3}	4	26	0	2	30
Allowable Exceedances of Single- Sample	1	4	0	1	5

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		Pacifica State Beach		
	Dry Weather	Wet Weather⁵	Summer Dry Weather (Apr. 1 - Oct. 31)	Winter Dry Weather (Nov. 1 - Mar. 31)	Wet Weather⁵
Objectives (assuming weekly sampling is conducted)⁴					
Notes: 1. Allowable exceedances are calculated by multiplying exceedance rates observed in the reference system(s) by the number of days during each respective period in the reference year (1994). 2. To end up with whole numbers, where the fractional remainder for the calculated allowable exceedance days exceeds 0.1, then the number of days is rounded up. 3. The calculated number of exceedance days assumes that daily sampling is conducted. 4. To determine the allowable number of exceedance events given a weekly sampling regime, as practiced for monitoring San Pedro Creek and Pacifica State Beach, the number of exceedance days was adjusted by solving for "X" in the following equation: $X = (\text{exceedance days} \times 52 \text{ weeks}) / 365 \text{ days}$. 5. Wet weather is defined as any day with 0.1 inches of rain or more and the following three days.					

Final Bacteria Deadlines

The TMDLs, load allocations and wasteload allocations for Pacifica State Beach shall be attained within eight years of the effective date of the TMDL (August 1, 2021). The TMDLs, load allocations and wasteload allocations to San Pedro Creek shall be attained within 15 years of the effective Date of the TMDL (August 1, 2028).

Storm water discharges from the Department's stretch of Highway 1 crossing the northwestern edge of the San Pedro Creek watershed are not a significant source of indicator bacteria because that section of the highway does not include any typical bacteria-generating sources such as homeless encampments, restroom facilities, garbage bins, etc. The Department's existing BMPs and storm water NPDES permit requirements, as of the effective date of the TMDL (August 1, 2013), are sufficient to attain and maintain its portion of the wasteload allocation.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is not known.

LOS ANGELES REGION BACTERIA TMDLS

Ballona Creek, Ballona Estuary, and Sepulveda Channel Bacteria TMDL, March 26, 2007

Final Bacteria WLA

The Department is noted as a source of storm water runoff. The Department and municipal storm water permittees and co-permittees are assigned waste load allocations (WLAs) expressed as the number of daily or weekly sample days that may exceed the single sample targets equal to the TMDLs established for the impaired reaches and WLA assigned to waters tributary to impaired reaches. The County of Los Angeles, the Department, and the Cities of Los Angeles, Culver City, Beverly Hills, Inglewood, West Hollywood, and Santa Monica are the responsible jurisdictions and responsible agencies for the Ballona Creek Watershed.

For the single sample objectives of the impaired REC-1 and LREC-1 reaches, the proposed WLA for summer dry-weather is zero (0) days of allowable exceedances, and those for winter dry-weather and wet-weather are three (3) days and seventeen (17) days of exceedance, respectively. In the instances where more than one single sample objective applies, exceedance of any one of the limits constitutes an exceedance day. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

For the single sample objectives of the impaired REC-2 reach, the proposed WLA for all periods is a 10 percent exceedance frequency of the REC-2 single sample water quality objectives. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

In addition to assigning TMDLs for the impaired reaches, Waste Load Allocations and Load Allocations are assigned to the tributaries to these impaired reaches. These WLAs and LAs are to be met at the confluence of each tributary and its downstream reach (see Table 7.21.2b of Attachment A to Resolution No. 2006-011). See Chapter 3 of Region 4's Basin Plan for bacteriological objectives for Water Contact Recreation for Marine and Fresh Waters, for Limited Water Contact Recreation and for Non-contact Water Recreation.

Final Bacteria WLA Specific to the Department

There is no specific WLA assigned to the Department. The responsible jurisdictions and responsible agencies within the watershed are jointly responsible for complying with the waste load allocation in each reach.

Final Bacteria Deadlines

See Final WLA above.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's jurisdiction within the cities and unincorporated areas in the Ballona Creek Watershed totals 1206 acres. This equals 1.5 percent of the watershed.

Long Beach City Beaches Indicator Bacteria TMDL, March 26, 2012

The TMDL identifies storm water runoff from the Department's properties such as the highway system, park and ride facilities, and maintenance yards as a potential source of bacteria. The Department has jurisdiction of some areas in the Los Angeles River (LAR) Estuary direct drainage, but not in the Long Beach City beaches direct drainage.

Final Bacteria WLA

To implement the single sample bacteria water quality objectives (total coliform, fecal coliform, enterococcus, and fecal-to-total coliform ratio) for waters designated REC-1, an allowable number of exceedance days for three seasons (summer dry, winter dry and winter wet) is set for marine waters using a reference system/anti-degradation approach. This approach ensures that bacteriological water quality is at least as good as that of a reference system and that no degradation of the existing bacteriological water quality is permitted where the existing condition is better than that of the selected reference system(s). The exceedance days are used to set load allocations (LA) and waste load allocations (WLAs) in these TMDLs.

Storm water systems covered under the City of Long Beach, Los Angeles County and the Department's MS4 permits are assigned WLAs in the form of exceedance days. During summer dry conditions, reductions in exceedance days are estimated to be 13-120 days during a 120 day period (11 percent to 100 percent of the time), depending on the location of the monitoring site. During winter wet conditions, reductions in exceedance days are estimated to be 11-45 days during a 75-day period (15 percent to 60 percent of the time) depending on the location of the monitoring site. During winter dry conditions, reductions in exceedance days are estimated to be 0-11 days during an 80 day period (zero (0) percent to 14 percent of the time) depending on the location of the monitoring site.

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

As this TMDL was established by U.S. EPA, U.S. EPA only described recommendations to the Regional Board that could be used. No timelines were noted.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The loading of bacteria specifically from the Department's properties has not been determined in the LAR Estuary direct drainage. However a conservative estimate of 128 acres or approximately two percent of the LAR Estuary drainage area is noted in the TMDL.

Los Angeles River Watershed Bacteria, March 23, 2012

Final Bacteria WLA

The Los Angeles River Watershed Bacteria TMDL was developed by the Los Angeles Regional Water Quality Control Board and approved by U.S. EPA. The TMDL identifies storm water from the MS4 Permittees (the Department along with the County of Los Angeles and the Incorporated Cities therein and the City of Long Beach) as the principal source of bacteria in both dry weather and wet weather.

Final Bacteria WLA Specific to the Department

This TMDL uses a “reference system/anti-degradation approach” to implement the water quality objectives per the implementation provisions in Chapter 3 of the Basin Plan. On the basis of the historical exceedance frequency at Southern California reference reaches, a certain number of daily exceedances of the single sample bacteria objectives are permitted. The allowable number of exceedance days is set such that (1) bacteriological water quality at any site is at least as good as at the reference site(s) and (2) there is no degradation of existing bacteriological water quality. This approach recognizes that there are natural sources of bacteria that may cause or contribute to exceedances of the single sample objectives and that it is not the intent of the Regional Board to require treatment or diversion of natural coastal creeks or to require treatment of natural sources of bacteria from undeveloped areas.

For MS4 dischargers, the final dry-weather WLAs and wet-weather WLA for the single sample targets are listed below:

Allowable Number of Exceedance Days	Daily Sampling	Weekly Sampling
Dry Weather	5	1
Non-High Flow Suspension (HFS) Waterbodies Wet Weather	15	2
HFS Waterbodies Wet Weather	10 (not including HFS days)	2 (not including HFS days)

The final WLAs for the geometric mean target during any time at any river segment and tributary in the Los Angeles River Watershed is zero (0) days of allowable exceedances.

Final Bacteria Deadlines

The Department has from 8.5 to 25 years (September 23, 2020 to March 23, 2037) to achieve final WLAs depending on the segment of the waterbody. Table 7-39.3 in Attachment A to Resolution No. R10-007 lists other interim implementation compliance dates.

Department's Bacteria Contribution (relative contribution to pollutant loading)
 The Department's MS4 permit covers approximately 6,950 acres, which is equivalent to around one percent of the urban watershed.

Malibu Creek and Lagoon Bacteria TMDL, June 7, 2012

The TMDL identifies on-site wastewater treatment plants, storm water runoff, dry weather runoff and wildlife (birds) as possible sources of bacterial contamination.

Final WLA

Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling
LA RWQCB	Triunfo Creek	5	1	15	2
LA RWQCB	Lower Las Virgenes Creek	5	1	15	2
LA RWQCB	Lower Medea Creek	5	1	15	2
LVMWD (R-9)	Upper Malibu Creek, above Las Virgenes Creek	5	1	15	2
LVMWD (R-2)	Middle Malibu Creek, below Tapia discharge 001	5	1	15	2
LVMWD (R-3)	Lower Malibu Creek, 3 mi below Tapia	5	1	15	2
LVMWD (R-4)	Malibu Lagoon, above PCH	5	1	15	2
LVMWD (R-11)	Malibu Lagoon, below PCH	9*	2*	17	3
	Other sampling stations as identified in the Compliance Monitoring Plan as approved by the Executive Officer including at least one sampling station in each subwatershed, and areas where frequent REC-1 use is known to occur.	5	1	15	2

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling
Notes: The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data. The allowable number of exceedance days is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station. ^ A dry day is defined as a non-wet day. A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event. * The number of allowable exceedance days is for the winter dry-weather period. No exceedance days are allowed for the summer dry-weather period.					

Final Bacteria WLA Specific to the Department

No exceedances are allowed for the geometric mean limits. The allowable days of exceedance for the single sample limits differ depending on season, dry weather or wet weather, and by sampling locations as described in the Table above (Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location)

Final Bacteria Deadlines

This TMDL will be implemented in two phases as outlined in the TMDL. By January 24, 2012, compliance with the allowable number of dry-weather exceedance days must be achieved. By July 15, 2021, compliance with the allowable number of wet-weather exceedance days and the geometric mean targets must be achieved.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is not known.

Marina del Rey Harbor (MdRH) Mother's Beach and Back Basin Bacteria TMDL, March 18, 2004, revised November 7, 2013

The TMDL identifies dry-weather urban runoff and storm water conveyed by storm drains as the primary sources of elevated bacterial indicator densities to MdRH Mothers' Beach and back basins during dry and wet weather. Potential sources of bacterial contaminations at Mothers' Beach and the back basins of MdRH include marina activities such as waste disposal from boats, boat deck and slip washing, swimmer "wash-off," restaurant washouts and natural sources from birds, waterfowl and other wildlife.

Final Bacteria WLA

Implementation of the bacteria objectives and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" as set forth in Chapter 3 of

the Basin Plan. As required by the Clean Water Act and California Water Code, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region’s standards.

The geometric mean targets may not be exceeded at any time. For purposes of this TMDL, the geometric means shall be calculated weekly as a rolling geometric mean using five or more samples, for six week periods starting all calculation weeks on Sunday. For the single sample targets, each existing monitoring site is assigned an allowable number of exceedance days for three time periods: (1) summer dry-weather (April 1 to October 31), (2) winter dry-weather (November 1 to March 31), and (3) wet-weather (defined as days with 0.1 inch of rain or greater and the three days following the rain event).

The County of Los Angeles, Los Angeles County Flood Control District, City of Los Angeles, and Culver City are the Los Angeles County MS4 permittees identified as the responsible jurisdictions and responsible agencies for the Marina del Rey Watershed. All proposed WLAs for summer dry weather are zero (0) days of allowable exceedances.²⁴ The proposed WLAs for winter dry weather and wet weather vary by monitoring location as identified in the following table:

Marina del Rey Harbor Mothers’ Beach and Back Basins Bacteria TMDL: Final Allowable Exceedance Days by Sampling Location

Compliance Deadline		March 18, 2007		March 18, 2007		July 15, 2021	
		Summer Dry Weather ^		Winter Dry Weather ^		Wet Weather ^	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
Station ID	Location Name	Daily sampling (No. days)	Weekly sampling (No. Days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
MdRH-1	Mothers’ (Marina) Beach, at playground area	0	0	9	2	17	3

²⁴ In order to fully protect public health, no exceedances are permitted at any monitoring location during summer dry-weather (April 1 to October 31). In addition to being consistent with the two criteria, waste load allocations of zero (0) days of allowable exceedances are further supported by the fact that the California Department of Public Health has established minimum protective bacteriological standards – the same as the numeric targets in this TMDL – which, when exceeded during the period April 1 to October 31, result in posting a beach with a health hazard warning (California Code of Regulations, Title 17, Section 7958).

Compliance Deadline		March 18, 2007		March 18, 2007		July 15, 2021	
		Summer Dry Weather ^		Winter Dry Weather ^		Wet Weather ^	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
MdRH-2	Mothers' (Marina) Beach, at lifeguard tower	0	0	9	2	17	3
MdRH-3	Mothers' (Marina) Beach, between lifeguard tower and boat dock	0	0	9	2	17	3
MdRH-4	Basin D, near first slips outside swim area	0	0	9	2	17	3
MdRH-5	Basin E, in front of tide-gate from Oxford Basin	0	0	9	2	17	3
MdRH-6	Basin E, center of basin	0	0	9	2	17	3
MdRH-7	Basin E, in front of Boone-Olive Pump Outlet	0	0	9	2	17	3
MdRH-8	Back of Main Channel	0	0	9	2	17	3
MdRH-9	Basin F, center of basin	0	0	9	2	8	1

Compliance Deadline	March 18, 2007	March 18, 2007	July 15, 2021
	Summer Dry Weather ^	Winter Dry Weather ^	Wet Weather ^
	Apr 1 – Oct 31	Nov 1 – Mar 31	Nov 1 – Oct 31
<p>Notes:</p> <p>The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data.</p> <p>The allowable number of exceedance days during winter dry-weather is calculated based on the 10th percentile storm year in terms of dry days at the LAX meteorological station.</p> <p>The allowable number of exceedance days during wet-weather is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station.</p> <p>^ A dry day is defined as a non-wet day.</p> <p>A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event.</p>			

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

This TMDL will be implemented over an 18-year period. By March 18, 2007, there shall be no allowable exceedances of the single sample limits at any location during summer dry weather (April 1 to October 31) or winter dry weather (November 1 to March 31). By July 15, 2021, compliance with the allowable number of wet weather exceedance days and the geometric mean targets must be achieved.

Department’s Bacteria Contribution (relative contribution to pollutant loading)

The Department’s jurisdiction covers one percent of the watershed.

Santa Clara River Estuary and Reaches 3, 5, 6, and 7 Indicator Bacteria TMDL, January 13, 2012

The TMDL identifies dry- and wet-weather urban runoff discharges from the storm water conveyance systems as significant contributors of bacteria loading to the Santa Clara River and Estuary. Mass emission data collected by MS4 Permittees show elevated levels of bacteria in the river. Data from natural landscapes in the region indicate that open space loading is not a significant source of bacteria.

Final Bacteria WLA

The Statewide Storm Water Permit for Department Activities (CAS000003) are assigned WLAs of zero (0) allowable exceedance days of the single sample targets for both dry and wet weather and no exceedances of the geometric mean targets because they are not expected to be significant source of indicator bacteria. Compliance with an effluent limit based on the bacteria water quality objectives will be used to demonstrate compliance with the WLA.

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Deadlines

The TMDL states that WLAs assigned to the Department's permit must be attained on the effective date of the TMDL.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pollutant loading is unknown.

Santa Monica Bay Beaches Bacteria TMDL June 19, 2003, Revised November 7, 2013

Final WLA

With the exception of isolated sewage spills, dry weather urban runoff and storm water runoff conveyed by storm drains and creeks is the primary source of elevated bacterial indicator densities to Santa Monica Beaches (SMB). Limited natural runoff and groundwater may also potentially contribute to elevated bacterial indicator densities during winter dry weather. Because the bacterial indicators used as targets in the TMDL are not specific to human sewage, storm water runoff from undeveloped areas may also be a source of elevated bacterial indicator densities. For example, storm water runoff from natural areas may convey fecal matter from wildlife and birds or bacteria from soil. This is supported by the finding that, at the reference beach, the probability of exceedance of the single sample targets during wet weather is 0.22.

Implementation of the bacteria objectives in Chapter 3 of the Basin Plan and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" rather than the alternative "natural sources exclusion approach" or strict application of the single sample objectives. As required by the Clean Water Act and Porter-Cologne Water Quality Control Act, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region's standards.

The geometric mean targets may not be exceeded at any time. For the single sample targets, each existing shoreline monitoring site is assigned an allowable number of exceedance days during three time periods as defined in the table below (summer dry weather, winter dry weather, and wet weather [defined as days with 0.1 inch of rain or greater and the three days following the rain event]). The allowable exceedance days for each associated shoreline monitoring site are identified in the following table:

Allowable Number of Days that may Exceed any Single Sample Bacterial Indicator Target for Existing Shoreline Monitoring Stations

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
Station ID	Location Name	Subwatershed	Summer Dry Weather [^]		Winter Dry Weather [^]		Wet Weather Year-round	
			Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 1-1	Leo Carillo Beach (REFERENCE)	Arroyo Sequit	0	0	9	2	17	3
SMB 1-2	El Pescador State Beach	Los Alisos	0	0	1	1	5	1
SMB 1-3	El Matador State Beach	Encinal Canyon	0	0	1	1	3	1
SMB 1-4	Trancas Creek	Trancas Canyon	0	0	9	2	17	3
SMB 1-5	Zuma Creek	Zuma Canyon	0	0	9	2	17	3
SMB 1-6	Walnut Creek	Ramirez Canyon	0	0	9	2	17	3
SMB O-1#	Paradise Cove	Ramirez Canyon	0	0	9	2	15	3
SMB 1-7	Ramirez Creek	Ramirez Canyon	0	0	9	2	17	3
SMB 1-8	Escondido Creek	Escondido Canyon	0	0	9	2	17	3
SMB 1-9	Latigo Canyon Creek	Latigo Canyon	0	0	9	2	17	3
SMB 1-10	Solstice Creek	Solstice Canyon	0	0	5	1	17	3
SMB O-2#	Puerco Canyon storm drain	Corral Canyon	0	0	0	0	6	1
SMB 1-11	Wave wash of unnamed creek on Puerco Beach	Corral Canyon	0	0	9	2	17	3
SMB 1-12	Marie Canyon Storm Drain on	Corral Canyon	0	0	9	2	17	3
SMB 1-13	Sweetwater Creek on Carbon	Carbon Canyon	0	0	9	2	17	3
SMB 1-14	Las Flores Creek	Las Flores	0	0	6	1	17	3
SMB 1-15	Big Rock Beach at 19948 Pacific	Piedra Gorda	0	0	9	2	17	3
SMB 1-16	Pena Creek	Pena Canyon	0	0	3	1	14	2
SMB 1-17	Tuna Canyon Creek	Tuna Canyon	0	0	7	1	12	2
SMB 1-18	Topanga Creek	Topanga Canyon	0	0	9	2	17	3
SMB 4-1	San Nicholas Canyon Creek	Nicholas Canyon	0	0	4	1	14	2
SMB 2-1	Castlerock (Parker Mesa) Storm	Castlerock	0	0	9	2	17	3
SMB 2-2	Santa Ynez Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-3	Will Rogers State Beach at 17200	Santa Ynez	0	0	9	2	17	3
SMB 2-4	Pulga Canyon storm drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-5	Temescal Storm Drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-6	Bay Club Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-7	Santa Monica Canyon, Will	Santa Monica	0	0	9	2	17	3
SMB 2-8	Venice Pier, Venice	Ballona	0	0	9	2	17	3
SMB 2-9	Topsail Street extended	Ballona	0	0	9	2	17	3
SMB 2-10	Dockweiler State Beach at Culver	Dockweiler	0	0	9	2	17	3
SMB 2-11	North Westchester Storm Drain	Dockweiler	0	0	0	0	17	3
SMB 2-12	World Way extended	Dockweiler	0	0	9	2	17	3
SMB 2-13	Imperial Highway storm drain	Dockweiler	0	0	4	1	17	3
SMB 2-14	Opposite Hyperion Plant, 1 mile	Dockweiler	0	0	9	2	17	3
SMB 2-15	Grand Avenue Storm Drain	Dockweiler	0	0	9	2	17	3

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
Station ID	Location Name	Subwatershed	Summer Dry Weather [^]		Winter Dry Weather [^]		Wet Weather Year-round	
			Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 3-1	Montana Ave. Storm Drain	Santa Monica	0	0	9	2	17	3
SMB 3-2	Wilshire Blvd., Santa Monica	Santa Monica	0	0	9	2	17	3
SMB 3-3	Santa Monica Municipal Pier at	Santa Monica	0	0	9	2	17	3
SMB 3-4	Santa Monica Beach at	Santa Monica	0	0	9	2	17	3
SMB 3-5	Ashland Av. storm drain (Venice)	Santa Monica	0	0	9	2	17	3
SMB 3-6	Rose Ave. Storm Drain on	Santa Monica	0	0	6	1	17	3
SMB 3-7	Venice City Beach at Brooks	Ballona	0	0	9	2	17	3
SMB 3-8	Venice Pavilion at projection of	Ballona	0	0	9	2	17	3
SMB 3-9	Strand Street extended	Santa Monica	0	0	9	2	17	3
SMB 5-1	Manhattan State Beach at 40th	Hermosa	0	0	1	1	4	1
SMB 5-2	Terminus of 28th Street Drain in	Hermosa	0	0	9	2	17	3
SMB 5-3	Manhattan Beach Pier	Hermosa	0	0	3	1	6	1
SMB 5-4	Near 26th Street on Hermosa	Hermosa	0	0	3	1	12	2
SMB 5-5	Hermosa Beach Pier	Hermosa	0	0	2	1	8	2
SMB 6-1	Herondo Storm Drain	Redondo	0	0	9	2	17	3
SMB 6-2	Redondo Municipal Pier - 100	Redondo	0	0	3	1	14	2
SMB 6-3	4' x 4' outlet at projection of	Redondo	0	0	5	1	17	3
SMB 6-4	120' north of Topaz groin	Redondo	0	0	9	2	17	3
SMB 6-5	Storm Drain at Projection of	Redondo	0	0	4	1	11	2
SMB 6-6	Malaga Cove, Palos Verdes	Redondo	0	0	1	1	3	1
SMB 7-1	Malaga Cove	Palos Verdes	0	0	1	1	14	2
SMB 7-2	Bluff Cove	Palos Verdes	0	0	1	1	0	0
SMB 7-3	Long Point	Palos Verdes	0	0	1	1	5	1
SMB 7-4	Abalone Cove	Palos Verdes	0	0	0	0	1	1
SMB 7-5	Portuguese Bend Cove	Palos Verdes	0	0	1	1	2	1
SMB 7-6	Royal Palms	Palos Verdes	0	0	1	1	6	1
SMB 7-8	Wilder Annex	Palos Verdes	0	0	1	1	2	1
SMB 7-9	Outer Cabrillo Beach	Palos Verdes	0	0	1	1	3	1
SMB MC-1	Malibu Point, Malibu Colony Dr.	Malibu Canyon	0	0	9	2	17	3
SMB MC-2	Surfrider Beach (breach point of	Malibu Canyon	0	0	9	2	17	3
SMB MC-3	Malibu Pier on Carbon Beach	Malibu Canyon	0	0	9	2	17	3

Notes: The allowable number of exceedance days during winter dry weather is calculated based on the 10th percentile year in terms of non-wet days at the LAX meteorological station.
The number of allowable exceedances during winter dry weather is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical shoreline data.
[^]Dry weather days are defined as those with <0.1 inch of rain and those days not less than 3 days after a rain day. Rain days are defined as those with >=0.1 inch of rain.
Detailed descriptions of the sampling locations are provided in the Santa Monica Bay Beaches Bacterial TMDLs Coordinated Shoreline Monitoring Plan.
#Monitoring began in 2010 and data was examined from April 2010 to November 2011

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department’s Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to bacteria pollutant loading is not known.

COLORADO RIVER REGION BACTERIA TMDL

Coachella Valley Storm Water Channel (CVSC) Bacterial Indicators TMDL, April 27, 2012

The TMDL identifies flows from urban MS4s as violating applicable water quality objectives for REC I and REC II. Birds and other animals are possible sources of bacteria in the CVSC.

Final Bacterial Indicator WLA

Wasteload allocations (WLAs) for bacteria indicator dischargers into CVSC are described below:

Allocation Type	Discharger	E. Coli Allocations
Point Source (WLAs)	Department	A log mean (Geomean) of the MPN of ≤126/100ml (based on a minimum of not less than five samples during a 30-day period), or 400 MPN/100ml for a single sample.

Final Bacterial Indicator WLA Specific to the Department

See Final WLA above.

Final Bacterial Indicator Deadlines

The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department’s Bacterial Indicator Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to bacteria pollutant loading is not known.

SAN DIEGO REGION BACTERIA TMDL

Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek) TMDL, June 22, 2011

The TMDL identifies dry and wet weather runoff as the source of bacterial loading.

Final Indicator Bacteria WLA

In general, controllable point and nonpoint sources generating less than five percent of the total loads (e.g., The Department and/or Agriculture) were assigned WLAs and LAs equal to their existing loads, resulting in no load reduction requirements.

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria to surface waters during dry weather is expected to occur in urban areas. The allocation of the dry weather mass-based TMDL assumes that no surface runoff discharge to receiving waters occurs from the Department, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., $WLA_{MS4} = TMDL$).

For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, the Department, Agriculture, and Open Space). The Department's wet weather WLAs were set equal to existing loads, since the Department's discharges were found to account for less than 1 percent of the wet weather load. Allocations were assigned based on discharges of "existing" bacteria loads predicted with a wet weather watershed model. In general, the Department WLAs, Agriculture LAs (in all but four of the modeled watersheds), and Open Space LAs were set equal to the "existing" bacteria loads predicted by the wet weather watershed model. The remainder of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in four of the modeled watersheds).

Final Indicator Bacteria WLA Specific to Department

See Final WLA above.

Final Indicator Bacteria Deadlines

TMDL Compliance Schedule: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years (April 4, 2021 to April 4, 2031) from the effective date of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment

that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date.

For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years (April 4, 2031) from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment.

Department's Indicator Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is unknown.

F. Diazinon TMDL Pollutant Category

General Description of Pollutant Category

Diazinon is an organophosphate insecticide has been banned for residential use; it is still used in agriculture.

Sources of Pollutant & How it Enters the Waterway

It is a broad spectrum contact insecticide. Residential use was for general-purpose gardening use and indoor pest control of ants, fleas, cockroaches, silverfish, mosquitos and spiders in residential, non-food buildings.

Watershed Contribution

The Department does not use Diazinon. The Department is identified as a source of Diazinon because they own and operate storm water conveyance systems in association with roadways and facilities. In some areas the Department's storm water systems are connected to municipal storm water systems.

Control Measures

Attachment IV, Section III.F, prohibits the discharge of Diazinon. This prohibition is consistent with the TMDLs for Diazinon which generally limit the discharge of this pesticide to non-toxic levels. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge. Attachment IV, Part F does not require additional monitoring beyond what is specified in the permit.

SAN FRANCISCO BAY REGION DIAZINON TMDL

San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity May 16, 2007

The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The use of diazinon is prohibited in the Department's NPDES permit, and no additional measures are required.

Final Diazinon WLA

The WLA for each storm water entity is 100 ng/L as a one-hour average.

Final Diazinon WLA Specific to the Department

The Department's level of responsibility is not identified.

Final Diazinon Deadlines

The TMDL does not specify any interim or final compliance dates but states that the requirements included in the permits are inadequate to meet the targets the San Francisco Bay Water Board will require additional control measures or additional actions by others.

Department's Diazinon Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the diazinon pollutant loading is not known.

SAN DIEGO REGION DIAZINON TMDL

Chollas Creek Diazinon TMDL, November 3, 2003

Final Diazinon WLA

The below concentration-based waste load allocations are applied equally to all diazinon discharge sources in the Chollas Creek watershed:

Waterbody	Diazinon (ng/L)	
	Acute (1 hour ave)	Chronic (4 day ave)
Chollas Creek	72	45

Final Diazinon WLA Specific to the Department

The final WLA for the Department is noted above.

Final Diazinon Deadlines

The TMDL states that the phased compliance schedule will apply only to attainment of numeric limitations for diazinon and all other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits.

Department Diazinon Contribution

In the supporting technical documentation, the San Diego Regional Water Board stated that the Department is responsible for the major freeways and roadways making up approximately four percent of the land in the watershed; that the Department reports diazinon is not used; and that the Department has an integrated pest management plan. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge.

G. Selenium TMDL Pollutant Category

General Description of Pollutant Category

Sources of Pollutant & How it Enters the Waterway

Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as sources of selenium to surface waters in southern California. Generally, atmospheric deposition was determined to be a not significant source. Selenium bioaccumulates to levels that cause severe impacts on invertebrates, fish, birds that prey on fish, and humans.

Watershed Contribution

Selenium in soil may be a contributing source, and naturally occurring selenium in groundwater may be a significant source.

Control Measures

As discussed under the individual TMDLs below, the TMDLs in this pollutant category generally establish that the Department is a relatively minor source of selenium since the sources of selenium are not transportation related. The Department is expected to continue its current pollutant control activities in order to remain in compliance with the TMDLs.

LOS ANGELES REGION SELENIUM TMDL

Ballona Creek Metals and Selenium TMDL, December 22, 2005 and reaffirmed on October 29, 2008.

This TMDL addresses dry- and wet-weather discharges of metals and selenium in Ballona Creek and Sepulveda Canyon Channel. There are significant differences in the sources of metals and selenium loadings during dry and wet weather because hardness values and flow conditions in Ballona Creek and Sepulveda Canyon Channel vary between dry and wet weather. A grouped mass-based waste load allocation is developed for the storm water permittees that includes the Department.

Final Selenium WLA

The Department and MS4 storm water NPDES permittees will be found to be effectively meeting the dry-weather WLAs if the instream pollutant concentrations or load at the first downstream monitoring location is equal to or less than the corresponding concentration- or load based WLA.

Selenium Dry-weather Storm Water WLAs Apportioned between Storm Water Permits (grams total recoverable metals/day)

Permittee	Waste Load Allocation (grams/day)
Ballona Creek	
MS4 Permittees	169
Department	2
Sepulveda Channel	
MS4 Permittees	76
General Industrial	1

Selenium Wet-weather Storm Water WLAs Apportioned between Storm Water Permits (total recoverable metals)

Permittee	Waste Load Allocation (grams/day)
MS4 Permittees	4.73E-06 x Daily storm volume (L)
Department	6.59E-08 x Daily Storm Volume (L)
General Construction	1.37E-07 x Daily storm volume (L)
General Industrial	3.44E-08 x Daily storm volume (L)

The Department and MS4 NPDES permittees will be found to be effectively meeting the wet-weather WLAs if the loading at the most downstream monitoring location is equal to or less than the wet-weather WLA.

Final Selenium WLA Specific to the Department

See Tables above for specific Department WLAs.

Final Deadlines

The implementation schedule for the MS4 permittees and the Department consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed, with total compliance to be achieved within 15 years. The Department shall demonstrate that 100 percent of the total drainage area served by the MS4 system is effectively meeting the dry-weather and wet-weather WLAs.

Whereas the Department is responsible for meeting their mass-based waste load allocations they may choose to work with the MS4 Permittees.

Department’s Selenium Contribution (relative contribution to pollutant loading)

The Department’s relative contribution to the selenium loading is not known.

Calleguas Creek, its Tributaries and Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Significant sources were identified as urban runoff, agricultural runoff, groundwater seepage and POTW effluent. The Department is a participant in the watershed-wide water monitoring program.

Final Selenium WLA

Dry-weather is defined as days when flows in the stream are less than the 86th percentile flow rate for each reach; wet weather is defined as flows greater than 86th percentile. The daily maximum interim limit is set equal to the 99th percentile of available discharge data, the monthly average interim limit is set equal to the 95th percentile. The interim WLAs for dry-weather in Revolon Slough are 14 µg/L criteria maximum concentration (CMC), and 13 µg/L criteria continuous concentration (CCC) for wet-weather. There is no interim wet-weather WLA because current loads do not exceed the TMDL. In this TMDL interim limits and WLAs are applied to receiving waters.

Final Selenium WLA Specific to the Department

Final WLAs for selenium in Revolon Slough are:

Dry weather: In lbs/day are 0.004 low flow, 0.003 average flow, 0.004 elevated flow.

Wet weather: In lbs/day is $0.027*Q^2+0.47*Q$, where Q equals the daily storm volume.

Current loads do not exceed the loading capacity during wet weather, therefore no additional action by the Department is needed during wet weather.

Final Deadlines

The TMDL states that storm water dischargers are expected to achieve compliance through implementation of BMPs. A group watershed monitoring plan was required and receiving water monitoring compliance points are specified for all dischargers subject to the TMDL. A 25 percent reduction was required by March 2012, and a 50 percent reduction is required by March 2017. Final compliance is required by March 2022. The TMDL states that achievement of required reductions will be evaluated based on progress towards BMP implementation as outlined in the UWQMPs and in consideration of background loading information. The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Department's Selenium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the selenium pollutant loading is not known.

San Gabriel River and Impaired Tributaries Metals and Selenium TMDL, March 26, 2007

The San Gabriel River and impaired tributaries metals and selenium TMDL was established by U.S. EPA (and therefore there are no milestones, compliance schedule, or monitoring requirements) and includes a dry-weather TMDL for selenium in San Jose Creek Reach 1.

The TMDL notes that selenium is present in local marine sedimentary rocks and presumes that much of the selenium in San Jose Creek results from natural soils, and that this assumption is corroborated by the fact that many of the impairments in San Jose Creek occur after the channel becomes soft-bottomed. Other potential sources were identified as mobilization of groundwater, such as by dewatering, irrigation of soils naturally high in selenium, and discharges from petroleum-related activities.

The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Final WLA for Selenium

The TMDL sets a dry-weather selenium WLA of five (5) µg/L for all storm water discharges to San Jose Creek. The TMDL states that a review of the storm water permits indicates that the Department discharges entirely to municipal storm water systems.

Final Selenium WLA Specific to the Department

No specific selenium WLAs are assigned to the Department. The dry-weather WLAs for the storm water permittees are shared by the MS4 permittees and the Department because there is not enough data on the relative extent of MS4 and the Department's areas.

Final Deadlines for Selenium

The MS4 permittees and the Department shall demonstrate that 100 percent of the total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs and attaining water quality standards for metals and selenium.

Department's Selenium Contribution (relative contribution to pollutant loading)

The Department's relative contribution to selenium pollutant loading is not known.

H. Temperature TMDL Pollutant Category

General Description of Pollutant Category

The North Coast Region Basin Plan defines the water quality objective for temperature as follows:

- (1) For estuaries, the Basin Plan incorporates by reference the statewide plan entitled "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California."
- (2) The following temperature objectives apply to surface waters:

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD water be increased by more than five degrees Fahrenheit

above natural receiving water temperature. At no time or place shall the temperature of WARM intrastate waters be increased more than five degrees Fahrenheit above natural receiving water temperature.

The designated beneficial uses affected by thermal pollution of receiving waters include: cold freshwater habitat (COLD); rare, threatened, and endangered species (RARE); migration of aquatic organisms (MIGR); and spawning, reproduction, and/or early development of fish (SPWN); commercial and sport fishing (COMM); and contact and non-contact water recreation (REC-1 and REC-2).

Sources of Pollutant & How it Enters the Waterway

Anthropogenic processes that influence water temperature include changes to stream shade, stream flow via changes in groundwater accretion, streamflow via surface water use, changes to local microclimates, and channel geometry. Road construction and maintenance can, for example, involve the removal of some riparian vegetation, thus increasing ambient water temperature along the affected segment of a surface water body unless this impact is minimized via re-planting and/or by reducing the amount of vegetation removed.

Natural sources of sediment which can increase receiving water temperatures include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Watershed Contribution

The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas soonest and therefore address the problem at the appropriate level for the temperature and sediment TMDLs.

Control Measures

Dischargers responsible for vegetation removal are encouraged (and sometimes required) to preserve and restore such vegetation where possible. This may include planting riparian trees, minimizing the removal of vegetation that provides shade to a water body, and minimizing activities that might suppress the growth of new or existing vegetation. Reductions in sediment loads are expected to increase the number and depth of pools in

streams and rivers, and to reduce wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

The Department is required to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in reducing thermal pollution in receiving waters. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and avoidance of alterations of natural runoff flow patterns.

The sediment control requirements in Attachment IV are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges.

The Sediment TMDL Implementation Policy also directs staff to develop: (1) the Work Plan, which describes how and when permitting and enforcement tools are to be used; (2) the Guidance Document on Sediment Waste Discharge Control; (3) the Sediment TMDL Implementation Monitoring Strategy; and (4) the Desired Conditions Report. Of these items, the Guidance Document on Sediment Waste Discharge Control and the Sediment TMDL Implementation Monitoring Strategy are still under development by the North Coast Region. At present, the requirements in Attachment IV are generally sufficient to address the sediment/temperature TMDLs in the North Coast Region that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

Attachment IV requires continuation of existing monitoring plans, or monitoring consistent with the TMDLs' requirements as approved by the Regional Water Board Executive Officer. A primary focus of the monitoring required by Attachment IV is management practice effectiveness monitoring and "Adaptive Management" for BMP implementation requirements ensures compliance with the sediment/temperature TMDLs.

The North Coast Regional Water Board is also in the process of amending its basin plan for the control of thermal pollution. These revisions will add a policy for implementing the water quality objective for temperature. The amendment will also add additional action plans to implement total maximum daily loads for temperature in the Navarro, and Eel, and Mattole watersheds.

The proposed revisions to the Basin Plan include changes to Chapter 4 –Implementation Plans. The Regional Water Board directed staff to prepare an amendment incorporating a temperature implementation policy into the Basin Plan by adoption of resolution R1-2012-0013. The proposed Basin Plan amendment will describe the approach to implementing the interstate water quality objective for temperature in one cohesive policy. It will identify the

regulatory mechanisms staff will employ to ensure achievement of the water quality objective for temperature, it will describe the significance of stream shade as a factor determining stream temperatures, and it will direct staff to address temperature concerns through existing authorities and processes.

The proposed Basin Plan amendment will also establish implementation plans for the Navarro, Mattole, Upper Main Eel, Middle Main Eel, Lower Eel, Middle Fork Eel, North Fork Eel, and South Fork Eel River temperature TMDLs.

NORTH COAST REGION TEMPERATURE TMDLS

Eel River (Lower HA) Temperature and Sediment TMDL, U.S. EPA Established on December 18, 2007

Final Temperature WLA

For the diffuse permitted sources, such as municipal and industrial storm water discharges, the Department's facilities, construction sites, and municipalities, as well as for discharges that are subject to NPDES permits but are not currently permitted, the waste load allocation (WLA) is expressed as follows: zero net increase in receiving water temperature.

Final Temperature WLA Specific to the Department

As stated above, U.S. EPA's wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)

U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (Middle-Fork) Eden Valley, and Round Valley HSAs Temperature and Sediment TMDL, U.S. EPA Established on December 2003

Final Temperature WLA

Although U.S. EPA states that because appropriate heat loads, water temperatures and tree heights cannot be generalized on a basin-wide scale, this reduction is best achieved by allowing trees to grow so as to provide the equivalent amount of shade that would be provided under natural conditions. In addition, measures to reduce sediment discharge and promote establishment or protection of additional refugia pool areas will facilitate attainment of water quality standards. In this sense, the temperature and sediment TMDLs overlap to some degree.

Final Temperature WLA Specific to the Department

Please see above discussion of the temperature WLA.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution (relative contribution to pollutant loading)

U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (South Fork) HA Temperature and Sediment TMDL, U.S. EPA Established on December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Temperature WLAs

As stated above, there is no wasteload allocation for point sources.

Final Temperature WLA Specific to the Department

As stated above, there is no specific wasteload allocation for the Department.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution to Thermal Loading (relative contribution to pollutant loading)

U.S. EPA attributes most sediment and thermal pollutant loading in the TMDL to nonpoint sources, and considers the Department's and other point source contributions to be comparatively minor.

Eel River (Upper Main HA) Temperature and Sediment TMDL, U.S. EPA Established on December 29, 2004

Final Temperature WLA

U.S. EPA states that there are no point source discharges included in the temperature TMDL for purposes of attaining temperature reductions via “shade allocation,” so the waste load allocation is set to zero. U.S. EPA states that permitted sources of increased water temperatures and sediment loading, if they occur in the future, will be attributable only to construction-related storm water discharges.

Final Temperature WLA Specific to the Department

As stated above, U.S. EPA stated that there are no point source discharges for thermal pollution, so the wasteload allocation for all point source discharges (including the Department) is set to zero.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation.

Department’s Temperature Contribution (relative contribution to pollutant loading)

U.S. EPA considers all point sources of temperature pollution to be insignificant for purposes of this TMDL.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010

Final Temperature WLA

The Iron Gate Fish Hatchery was identified as the only point-source heat load in the Klamath River watershed: The interstate water quality objective for temperature prohibits the discharge of thermal waste to the Klamath River, and therefore the waste load allocation for Iron Gate Hatchery is set to zero, as monthly average temperatures. The TMDL addresses elevated temperatures from natural and non-point anthropogenic sources. The non-point sources include: (1) excess solar radiation, expressed as its inverse, shade; (2) heat loads associated with increased sediment loads; (3) heat loading from impoundments; and (4) heat loads from Oregon. The assigned load allocations for temperature are expressed as follows (as adapted from Table 4-15 in the basin plan):

Source	Allocation
Excess Solar Radiation (expressed as effective shade)	The shade provided by topography and full potential vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations.
Impoundment Discharges	Zero temperature increase above natural temperatures ¹
Excess Solar Radiation	The shade provided by topography and full potential

Source	Allocation
(expressed as effective shade)	vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations. ²
Impoundment Discharges	Zero temperature increase above natural temperatures

1. Natural temperatures are those water temperatures that exist in the absence of anthropogenic influences, and are equal to natural background.
2. Substantial human-caused sediment-related channel alteration: “A human-caused alteration of stream channel dimensions that increases channel width, decreases depth, or removes riparian vegetation to a degree that alters stream temperature dynamics and is caused by increased sediment loading.”

Final Temperature WLA Specific to the Department

The Department was not assigned a waste load allocation for temperature.

Final Deadlines

No deadlines were specified.

Department’s Pollutant Contribution (relative contribution to pollutant loading)

The Department is listed as a source of thermal pollution: however, the relative magnitude of the Department’s contribution to thermal pollution was not specified or estimated.

Navarro River Sediment and Temperature TMDL, U.S. EPA Established on December 27, 2000

Final Temperature WLA

U.S. EPA states that there are no known point sources of heat to the Navarro or its tributaries. The source analysis therefore focused on non-point sources. The wasteload allocation any for point sources which might be present is thus presumed to set to zero.

The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools and to reduced wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

Improvements in stream temperature that may result from reduced sedimentation were not considered in the analysis.

Final Temperature WLA Specific to the Department

The Department is not specifically mentioned as a source of pollutant loading for temperature, therefore the wasteload allocation for the Department is presumed to be set to zero.

Final Temperature Deadlines

U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Temperature Contribution (relative contribution to pollutant loading)

As mentioned above, neither the Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Scott River Sediment and Temperature TMDL, August 11, 2006**Final Temperature WLA**

U.S. EPA states that there are no point sources for temperature related discharges within the area encompassed by this TMDL, so the waste load allocation is set to zero.

Final Temperature WLA Specific to the Department

U.S. EPA directed Regional Water Board staff shall evaluate the effects of the Department's state-wide NPDES permit, storm water permit, and waste discharge requirements (collectively known as the Department's Storm Water Program) by September 8, 2008. The evaluation shall determine the adequacy and effectiveness of the Department's Storm Water Program in preventing, reducing, and controlling sediment waste discharges and elevated water temperatures in the North Coast Region, including the Scott River watershed.

Final Temperature Deadlines

U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero.

Department's Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the temperature pollutant loading is not known.

Shasta River Dissolved Oxygen and Temperature TMDL, U.S. EPA Established on December 26, 2007**Final Temperature WLA**

There are no point source heat loads in the Shasta River watershed, and therefore no waste load allocations apply.

Final Temperature WLA Specific to the Department

The Department was not assigned a waste load allocation for temperature: as stated above, there are no point sources of heat loads in the Shasta River watershed.

Final Deadlines

No deadlines were specified.

Department’s Pollutant Contribution

The Department’s relative contribution to the temperature pollutant loading in Shasta River Watershed is not known.

I. Chloride Pollutant Category**General Description of Pollutant Category**

The Department is named as a responsible party in the Santa Clara River watershed chloride TMDL.

Sources of Pollutant & How it Enters the Waterway

Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners.

Watershed Contribution

The Department does not import water and does not use self-generating water softeners.

Control Measures

The Department is expected to be in compliance with the chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

LOS ANGELES REGION CHLORIDE TMDLS***Santa Clara River Reach 3 Chloride TMDL, U.S. EPA Established on June 18, 2003***

There are two major sources that discharge into Reach 3, the Santa Paula and Fillmore WRPs, that comprise approximately 80 percent of the total estimated load under flow conditions.

The Department is one of five minor point sources that discharge to Reach 3. Although the Department is a minor source, the minor discharges to the Santa Clara River are typically related to dewatering and construction projects that are covered by other NPDES permits.

Final Chloride WLA**Estimated Chloride Loads to Reach 3 Under Low Flow Conditions**

Point Sources	Waste Load Allocation (mg/L)
Fillmore WRP	80
Santa Paula WRP	80
MS4 Stormwater	80

Point Sources	Waste Load Allocation (mg/L)
Construction General Permit	80
Department	80
Other Minor Permits	80
NonPoint Sources	Load Allocation (mg/L)
Other Tributaries to Reach 3*	80
Sespe Creek	40
Santa Clara Reach 4	100
Total	80
* Although other tributaries to Reach 3 were not included in the linkage analysis above, their contributions to Reach 3 chloride loads and flows are believed to be insignificant.	

Final Chloride WLA Specific to the Department

Specific WLA for the Department is 80 mg/L.

Final Chloride Deadlines

U.S. EPA established this TMDL and it became effective on June 18, 2003. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the chloride pollutant loading in the Santa Clara River Reach 3 is not known.

Upper Santa Clara River Chloride TMDL, April 6, 2010

The principal source of chloride in the Upper Santa Clara River is discharges from the Saugus WRP and Valencia WRP, which are estimated to contribute 70 percent. These sources of chloride accumulate and degrade groundwater in the lower area east of Piru Creek in the basin.

Final Chloride WLA

Other minor NPDES discharges receive conditional WLAs shown below.

Reach	Concentration-based Conditional WLA for Chloride (mg/L)
6	150 (12-month Average)
	230 (Daily Maximum)
5	150 (12-month Average)
	230 (Daily Maximum)
4B	117 (3-month Average)
	230 (Daily Maximum)

Final Chloride WLA Specific to the Department

The Department is assigned the above concentration based WLAs.

Final Chloride Deadlines

The interim and final WLAs for TDS and sulfate contained in the Basin Plan Amendment are essentially established for the principal sources. The Department does not import water and does not use self-generating water softeners. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the chloride pollutant loading in the Upper Santa Clara River is not known.

Region Specific Requirements

The Regional Water Boards have identified specific areas within their Regions requiring special conditions (Attachment V). These special conditions are needed to account for the unique value of the resource(s) within the Region, special pollutant or pollution control issues within the Region, or storm water management and compliance issues applicable to the Region. These special requirements need not be applied statewide but are applicable only to Department discharges within the Regions as specified in Attachment V. Region specific requirements are included for the North Coast, San Francisco Bay, and Lahontan Regional Water Boards.

North Coast Region

1. **Sediment.** Region specific requirements addressing sediment discharges in sediment-impaired watersheds in the North Coast Region are based on the "Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region," as included in the Basin Plan and Resolution No. R1-2004-0087. The Policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards. The requirements in Attachment V to systematically inventory, prioritize, control, monitor, and adapt, as well as to include a time schedule in the annual District Workplan, are consistent with region-wide excess sediment control regulations.

The sediment requirements are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonid fishery are often the most sensitive to sediment discharges. Risks to salmonids from excessive sediment are well documented in scientific literature and include:

- the filling of pools and subsequent reduction in available in-stream salmonid habitat;
- burial of spawning gravels;
- gill abrasion and death due to extremely high turbidity levels;
- reduction in macroinvertebrate populations available as food for salmonids; and

- alterations in channel geometry to a wider, shallower channel which is subject to increases in solar heating.
2. Riparian Vegetation Requirements. Region specific requirements to protect and restore riparian vegetation are based on the Water Quality Objective for temperature. The temperature objective states, in part, that the natural receiving water temperature shall not be altered unless it can be demonstrated that such alteration does not adversely affect beneficial uses. Removal of riparian vegetation associated with Department activities has the potential to decrease shade, increase solar radiation, and raise water temperatures, and may therefore cause an exceedance of the temperature objective.

The requirements in Attachment V direct the Department to protect and restore riparian vegetation to the greatest extent feasible. In many cases, activities involving the removal of riparian vegetation will require a 401 water quality certification, which will contain more specific conditions regarding the removal and/or establishment of vegetation.

These requirements are intended to prevent alterations to natural receiving water temperature from Department activities. The primary mechanism in which riparian vegetation influences water temperature is through the shade. Loss of riparian vegetation and the shade that it provides can lead to increased solar radiation, hotter water temperatures, and adverse impacts to beneficial uses. The beneficial uses most sensitive to increases in water temperature are often those associated with the cold water salmonid fishery. Risks to salmonids are well documented in scientific literature and include:

- reduced feeding rates and growth rates;
- impaired development of embryos and alevins;
- changes in the timing of life history events, such as upstream migration, spawning, and seaward migration;
- increased disease infection rates and disease mortality; and
- direct mortality.

San Francisco Bay Region

The Urban Runoff Management, Comprehensive Control Program section of the Basin Plan (Chapter 4.14) requires municipalities and local agencies, including the Department, to address existing water quality problems and prevent new problems associated with urban runoff through the development and implementation of a comprehensive control program focused on reducing current levels of pollutant loading to storm drains to the maximum extent practicable.

The Highway Runoff Control Program section of the Basin Plan (Chapter 4.14.2) requires the Department to manage and monitor pollutant sources from its ROW through development and implementation of a highway runoff management plan.

The Basin Plan comprehensive and highway runoff program requirements are designed to be consistent with federal regulations (40 C.F.R., §§ 122-124) and are implemented through issuance of NPDES permits to owners and operators of MS4s. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations at section 3912. The Basin Plan identifies beneficial uses and establishes water quality objectives for surface waters in the Region, as well as effluent limitations and discharge prohibitions intended to protect those uses. The region-specific requirements in Attachment V of this Order implement the plans, policies, and provisions of the Regional Water Board's Basin Plan.

1. Trash Load Reduction.

a. Legal Authority. The following legal authorities apply to the trash load reduction requirements specified in Attachment V:

- Clean Water Act sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 Code of Federal Regulations sections 122.26(d)(2)(i)(B, C, D, E, and F) and 40 Code of Federal Regulations section 122.26(d)(2)(iv).
- Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B) requires, "shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."
- Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(2) requires, "a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens."
- Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(3) requires, "a description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water."
- Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(4) requires, "a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer."
- San Francisco Bay Basin Plan, Chapter 4 – Implementation, Table 4-1 Prohibitions, Prohibition 7, which is consistent with the State Water Board's Enclosed Bays and Estuaries Policy, Resolution 95-84, prohibits the discharge of rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas. This prohibition was adopted by the Regional Water Board in the 1975 Basin Plan, primarily to protect recreational uses such as boating.

- b. Extent, Impacts, and Conclusions. Trash²⁵ and litter are a pervasive problem near and in creeks and in San Francisco Bay having major impacts on the environment, including aquatic life and habitat in those waters. Ubiquitous, unacceptable levels of trash in waters of the San Francisco Bay Region warrant a comprehensive and progressive program of education, warning, and enforcement, and certain areas warrant consideration of structural controls and treatment. Trash in urban waterways of coastal areas can become *marine debris*, known to harm fish and wildlife and cause adverse economic impacts.²⁶ It accumulates in streams, rivers, bays, and ocean beaches throughout the San Francisco Bay Region, particularly in urban areas.

Trash adversely affects numerous beneficial uses of waters, particularly recreation and aquatic habitat. Not all litter and debris delivered to streams are of equal concern with regard to water quality. Besides the obvious negative aesthetic effects, most of the harm of trash in surface waters is to wildlife in the form of entanglement or ingestion.^{27,28} Some elements of trash exhibit significant threats to human health, such as discarded medical waste, human or pet waste, and broken glass.²⁹ Also, some household and industrial wastes can contain toxic batteries, pesticide containers, and fluorescent light bulbs containing mercury. Large trash items such as discarded appliances can present physical barriers to natural stream flow, causing physical impacts such as bank erosion. From a management perspective, the persistent accumulation of trash in a waterbody is of particular concern, and signifies a priority for prevention of trash discharges. Also of concern are trash *hotspots* where illegal dumping, littering, and/or accumulation of trash occur.

The narrative water quality objectives applicable to trash are Floating Material (Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses), Settleable Material (Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses), and Suspended Material (Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses).

²⁵ For the purposes of this provision, trash is defined to consist of litter and particles of litter. Man-made litter is defined in California Government Code section 68055.1 (g): *Litter* means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing.

²⁶ Moore, S.L., and M.J. Allen. 2000. Distribution of anthropogenic and natural debris on the mainland shelf of the Southern California Bight. *Mar. Poll. Bull.* 40:83-88.

²⁷ Laist, D. W. and M. Liffmann. 2000. *Impacts of marine debris: research and management needs*. Issue papers of the International Marine Debris Conference, Aug. 6-11, 2000. Honolulu, HI, pp. 16–29.

²⁸ McCauley, S.J. and K.A. Bjorndahl. 1998. Conservation implications of dietary dilution from debris ingestion: sublethal effects in post-hatchling loggerhead sea turtles. *Conserv. Biol.* 13(4):925-929.

²⁹ Sheavly, S.B. 2004. *Marine Debris: an Overview of a Critical Issue for our Oceans*. 2004 International Coastal Cleanup Conference, San Juan, Puerto Rico. The Ocean Conservancy.

The Regional Water Board, at its February 11, 2009 hearing, adopted a resolution proposing that 26 waterbodies be added to the 303(d) list for trash. The adopted Resolution and supporting documents are contained in Attachment 10.1 – 303(d) Trash Resolution and Staff Report, February 2009.

Data collected by Regional Water Board staff using the SWAMP Rapid Trash Assessment (RTA) Protocol,³⁰ over the 2003–2005 period,³¹ suggest that the current approach to managing trash in waterbodies is not reducing the adverse impact on beneficial uses. The levels of trash in the waters of the San Francisco Bay Region are high, even with the Basin Plan prohibitions and potentially large fines. During dry weather conditions, a significant quantity of trash, particularly plastic, is making its way into storm drains and being transported downstream to San Francisco Bay and the Pacific Ocean. On the basis of 85 surveys conducted at 26 sites throughout the Bay Area, staff have found an average of 2.93 pieces of trash for every foot of stream, and all the trash was removed when it was surveyed, indicating high return rates of trash over the 2003–2005 study period.

A number of key conclusions can be made from the RTA study:

- Lower watershed sites have higher densities of trash.
 - All watersheds studied in the San Francisco Bay Region have high levels of trash.
 - There are trash source hotspots, usually associated with parks, schools, or poorly kept commercial facilities.
 - Dry season deposition of trash, associated with wind and dry season runoff, contributes measurable levels of trash to downstream locations.
 - The majority of trash is plastic at lower watershed sites where trash accumulates in the wet season. This suggests that urban runoff is a major source of floatable plastic found in the ocean and on beaches as marine debris.
 - Parks that have more evident management of trash by city staff and local volunteers, including cleanup within the creek channel, have measurably less trash and higher RTA scores.
- c. Trash Reduction measures shall demonstrate compliance through timely implementation of controls in all high trash generating areas for the prohibition of discharge of trash and include the following:
- Implementation of full capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchment that service the significant trash generating areas.
 - Coordinate with neighboring MS4 permittees to construct, operate and maintain those controls listed above.

³⁰ SWAMP Rapid Trash Assessment Protocol, Version 8

³¹ SWAMP S.F. Bay Region Trash Report, January 23, 2007

- Assess for the effectiveness of enhanced maintenance controls implemented in high generating trash areas, as well as coordination with local municipalities.
 - Abate trash from construction and reconstruction projects.
 - Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.
 - Report in each Annual Report, as part of the TMDL STATUS REVIEW REPORT a per District summary of trash reduction controls and their effectiveness.
- d. Costs of Trash Control. Costs for either enhanced trash management measure implementation or installation and maintenance of trash capture devices are significant, but when spread over several years, and when viewed on a per-capita basis, are reasonable. To meet Basin Plan and local MS4 requirements, trash capture devices have already been installed by other municipalities in the Bay Area.

Cost information on various trash capture devices is included in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) BMP Trash Toolbox (July 2007). The Toolbox contains cost information for both trash capture devices and enhanced trash management measure implementation, covers a broad range of options, and also discusses operation and maintenance costs.

2. Storm Water Pump Stations. In late 2005, Regional Water Board staff investigated an occurrence of low salinity and dissolved oxygen conditions in Old Alameda Creek (Alameda County) and Alviso Slough (Santa Clara County). In the case of Old Alameda Creek, discharge of black-colored water from the Alvarado pump station to the slough was observed at the time of the data collection on September 7, 2005, confirming dry weather urban runoff as the source of the violations of the five (5) mg/L dissolved oxygen water quality objective. Such conditions were measured again on September 21, 2005.

On October 17, 2005, waters in Alviso Slough were much less saline than the salt ponds and had the lowest documented dissolved oxygen of the summer, suggesting a dry weather urban runoff source. The dissolved oxygen sag was detected surface to bottom at 2.3 mg/L at a salinity of less than one part per thousand (ppt), mid-day, when oxygen levels should be high at the surface. The sloughs have a typical depth of six feet.

Board staff's investigations of these incidents, documented in a memorandum,³² found that "storm water pump stations, universally operated by automatic float triggers, have been confirmed as the cause in at least one instance, and may represent an overlooked source of controllable pollution to the San Francisco Bay Estuary and its tidal sloughs... [that] discharges of dry weather urban runoff from these pump stations are not being managed to protect water quality, and [that] surveillance monitoring has detected measurable negative water quality consequences of this current state of pump station management."

³² Internal Water Board Memo dated December 2, 2005: "Dry Weather Urban Weather Urban Runoff Causing or Contributing to Water Quality Violations: Low Dissolved Oxygen (DO) in Old Alameda Creek and Alviso Slough."

Pump station discharges of dry weather urban runoff can cause violations of water quality objectives. These discharges are controllable point sources of pollution that are virtually unregulated. The Regional Water Board has determined that the measures included in Attachment V are necessary to address these discharges and water quality problems.

Lahontan Region

1. The Lahontan Basin Plan encourages the infiltration of storm water runoff to treat pollutants in discharges and mitigate the effects of increased runoff to surface waters from the addition of impervious surfaces. The 20-year, one-hour design storm has been historically applied and accepted as an effective requirement to mitigate discharges of storm water to surface waters in the sensitive high mountain watersheds of the Lahontan Region. Water Board staff has estimated that facilities designed to treat or infiltrate the 20-year, one-hour storm event effectively capture approximately 85 percent of the average annual runoff volume in the Lake Tahoe Basin. However, it is recognized that the natural environment provides adequate infiltration and/or treatment in areas where there is little or no connectivity to surface waters. Therefore the Lahontan Water Board encourages the Department to focus implementation of storm water treatment facilities in those areas that discharge directly to surface waters to maximize water quality benefits. This requirement is applicable to existing highways and facilities in the Mammoth Lakes Area Hydrologic Unit.
2. The Natural Environment as Treatment (NEAT) study has helped identify the priority areas within the Lake Tahoe Hydrologic Unit where storm water treatment and control measure implementation has the most benefit for water quality protection. Similarly, the NEAT study has helped identify those areas where there may be limited water quality benefits associated with implementing structural treatment and control measures. The NEAT approach is also applicable in other areas. This provision is needed to focus available resources on the areas where the most water quality benefit can be achieved.
3. The October 15 to May 1 grading prohibition is necessary to reduce erosion and sedimentation from disturbed areas within the sensitive high elevation areas within the Lahontan Region. These are areas where snow fall restricts the ability to control storm water pollution through the winter months. This requirement mitigates winter erosion issues by requiring disturbed soil areas to be winterized prior to the onset of snow, and allows for exceptions where there is a compelling need.

Regional Water Board Authorities

Regional Water Boards and their staff will oversee implementation and compliance with this Order. As appropriate, they will review reports, conduct inspections, and take enforcement actions on violations of this Order.

Cost of Compliance and Other MEP Considerations

General Cost Considerations in Storm Water Regulation and Management

The Department will incur incremental costs in implementing this Order, such as the cost of complying with the Order's storm water treatment BMP, post-construction, hydromodification, Low Impact Development, and monitoring and reporting requirements. The Department will also incur additional costs in following the iterative process as required by the Order. The cost of complying with TMDL waste load allocations is not considered since TMDLs are not subject to the MEP standard.

In adopting Order WQ 2000-11, the State Water Board found that cost is a relevant factor, among others such as feasibility and public acceptance that should be considered in determining MEP. The State Water Board considered the costs in preparing this Order and has determined that the costs reflect the MEP standard. The State Water Board further found in adopting Order WQ 2000-11 that in considering the cost of compliance, it is also important to consider the costs of impairment; that is, the negative impact of pollution on the economy and the positive impact of improved water quality. So, while it is appropriate and necessary to consider the cost of compliance, it is also important to consider the larger economic impacts of implementation of the storm water management program.

Many studies have been undertaken to assess the cost of compliance with storm water permits. Most studies have focused on municipal programs as opposed to "linear MS4s" or Departments of Transportation. A study by the Los Angeles Regional Water Board reported wide variability in the cost of compliance among municipal permit holders which was not easily explained (LARWQCB, 2003).

In 1999, U.S. EPA reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be \$9.16 per household. U.S. EPA also studied 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at \$9.08 per household annually (U.S. EPA, 1999a).

A program cost study was also conducted by the Los Angeles Regional Water Board, where program costs reported in the municipalities' annual reports were assessed. The Water Board estimated the average per household cost to implement the MS4 program in Los Angeles County was \$12.50.

The State Water Board also commissioned a study by California State University, Sacramento to assess costs of the Phase I MS4 program. This study is current and includes an assessment of costs incurred by the City of Encinitas in implementing its program. Annual cost per household ranged from \$18-46, with the City of Encinitas representing the upper end of the range (SWRCB, 2005). The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and additional costs resulting from a consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the city receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for municipal storm water management program costs.

The California Department of Finance (Finance, 2003) conducted a comprehensive review of the Department's storm water program. Finance noted widely divergent compliance cost estimates produced by regulators and environmental organizations versus consultant's estimates. Finance also had difficulty identifying compliance costs because of the way storm water activities are integrated with other functions and allocated among the different divisions within the Department, and because they are funded from different sources. Finance made three findings related to cost:

- The projected costs of compliance are escalating.
- Storm water compliance costs are integrated into many of the Department's business processes and are not accurately tracked.
- As storm water compliance costs increase, the amount of funding available for highway projects decreases, which reduces the number of projects that can be constructed.

The review concluded that balancing costs and benefits is a difficult policy decision and there should be a recognition of the trade-offs associated with resource allocation decisions given the Department's limited resources.

It is important to note that storm water program costs are not all attributable to compliance with MS4 permits. Many program components and their associated costs existed before any MS4 permits were issued. For example, for the Department, storm drain maintenance, street sweeping and trash/litter collection costs cannot be solely or even principally attributable to MS4 permit compliance since these practices have long been implemented before the MS4 permit was issued. Even many structural BMPs (erosion protection, energy dissipation devices, detention basins etc.) are standard engineering practice for many projects and are not implemented solely to comply with permit provisions. Therefore, the true cost resulting from MS4 permit requirements is some fraction of the cost to operate and maintain the highway system.

The California State University, Sacramento study found that only 38 percent of program costs are new costs fully attributable to MS4 permits. The remainder of program costs was either pre-existing or resulted from enhancement of pre-existing programs (SWRCB, 2005). The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement its Drainage Area Management Plan is less than 20 percent of the total budget. The remaining 80 percent is attributable to pre-existing programs (County of Orange, 2007). Any increase in cost to the Department by the requirements of this Order will be incremental in nature.

Storm water management programs cannot be considered solely in terms of their costs. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by U.S. EPA to be \$158-210 per household (U.S. EPA, 1999a). This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates U.S. EPA's estimates, reporting annual

household willingness to pay for statewide clean water to be \$180 (SWRCB, 2005). Though these costs may be assessed differently at the state level (for the Department) than at the municipal level, the results indicate that there is public support for storm water management programs and that costs incurred by the Department to implement its storm water management program remain reasonable.

It is also important to consider the cost of not implementing a storm water management program. Urban runoff in southern California has been found to cause illness in people bathing near storm drains (Haile et al., 1996). A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about \$3 million annually in health-related expenses (Lin, 2005). Extrapolation of such numbers to the beaches and other water contact recreation areas in the state would increase these numbers significantly.

Storm water runoff and its impact on receiving waters also impacts the tourism industry. The California Travel and Tourism Commission (2009) estimated that in 2008 direct travel spending in California was \$97.6 billion directly supporting 924,000 jobs, with earnings of \$30.6 billion. Travel spending in 2008 generated \$1.6 billion in local taxes and \$2.8 billion in state taxes. Impacts on tourism from storm water runoff (e.g. beach closures) can have a significant impact on the economy. The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately eight miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

Cost Considerations Relative to the Department

In written comments and before the Board, the Department has stated that the requirements of the first public drafts would impose prohibitive costs on the Department at a time of economic difficulty and limited resources. State Water Board staff has carefully considered the Department's comments and revised the draft Tentative Order to continue to address critical water quality problems in consideration of the cost of compliance.

State Water Board staff completed a Draft Tentative Order and submitted it to the Department, U.S. EPA, and the Natural Resources Defense Council for informal stakeholder review in the fall of 2010. Further review was provided by the Regional Water Boards. Staff revised the Draft Tentative Order to address the informal comments received and released it for public review on January 7, 2011 (Draft Tentative Order). Approximately 330 comments from 16 commenters were received on the Draft Tentative Order, and a public hearing was held on July 19, 2011. Staff further revised the Draft Tentative Order and released a Revised Draft Tentative Order on August 18, 2011 (Revised Draft Tentative Order). Approximately 220 comments from 33 commenters were received on the Revised Draft Tentative Order, and a State Water Board workshop was held on September 21, 2011. In each set of comments and before the Board, the Department expressed significant concerns with the cost of compliance with the Tentative Orders.

On October 6, 2011, the California Senate Select Committee on California Job Creation and Retention held a hearing on the economic impacts of the State Water Board's three general or statewide storm water permits that were under renewal: the Phase II Small MS4 permit, the Industrial General Permit, and the Department's MS4 permit. The Executive Director of the State Water Board testified at the hearing that the comments regarding cost of compliance with the permits were being considered carefully and that the three permits required substantial revision to address the comments. State Water Board staff held bi-weekly meetings with the Department in October through December 2011 to discuss their concerns. Revisions resulting from these meetings are contained in the Second Revised Draft Tentative Order which was released for public review on April 27, 2012 (Second Revised Draft Tentative Order).

This section is a general discussion of the cost of compliance with the Second Revised Draft Tentative Order and of current expenditures by the Department to comply with the existing permit (Order 99-06-DWQ) (Existing Permit). It also discusses the more significant changes between the Revised Draft and Second Revised Draft Tentative Orders.

It is very difficult to precisely determine the true cost of implementation of the Department's storm water management program as affected by this Order. Due to the extensive, distributed nature of the Department's MS4, permit requirements that involve an unknown level of implementation or that depend on environmental variables that are as yet undefined, and the difficulty in isolating program costs attributable to permit compliance, only general conclusions can be drawn from this information.

The Department has made a number of estimates of the cost of complying with the Draft and Revised Draft Tentative Orders. Generally, the Department's estimates are based on worst-case scenarios or the most restrictive interpretation of the Tentative Orders. In a presentation to a meeting of the American Association of State Highway and Transportation Officials (AASHTO) on June 22, 2011,³³ the Department's Chief Environmental Engineer, Scott McGowen estimated the annual cost of compliance at \$281million. This estimate was based on the January 7, 2011 Draft Tentative Order. At the July 19, 2011 public hearing, the Department estimated the annual compliance cost at approximately \$450 million, based on the same January 7, 2011 Draft Tentative Order. At the September 21, 2011 State Water Board workshop, the Department estimated an annual compliance cost of \$904 million, based on the requirements of the August 18, 2011 Revised Draft Tentative Order. It should be noted that the August 18 draft removed or modified a number of provisions that were expected to reduce the cost of compliance.

Annual expenditures for the Department's storm water management program under the Existing Permit (DWQ 99-06) are provided in the Department's annual reports. For fiscal years 2007-08 through 2010-11, the Department reported annual personal services and

³³ Caltrans NPDES Tentative Order, Natural Systems and Ecological Communities Subcommittee at the National Planning and Environmental Practitioners Meeting. AASHTO, June 22, 2011.

operating expenses of \$93.8 million, \$93.6 million, \$75.2 million, and \$89.2 million. These figures do not include the cost of capital improvements needed to comply with the permit.

State Water Board staff estimated the capital expenditures for the Existing Permit in two ways. First, the Department provided the number of post-construction storm water treatment BMPs installed in 2009-10 and 2010-11 along with typical unit costs for each BMP. In 2007-08, the Department spent approximately \$74.7 million for 396 treatment BMPs, \$104.5 million in 2009-10 for 667 treatment BMPs, and \$75.7 million in 2010-11 for 506 treatment BMPs. The Department indicated that anomalies in the data for 2008-09 make them unreliable and they are therefore not included. The Department also indicated that the unit cost factors do not include costs for design, ROW and other related elements. The estimates therefore can be considered on the low side.

Second, capital expenditures were estimated from budget appropriations from the Department's State Highway Operation and Protection Program (SHOPP) as reported in the 2008-09 annual report. The SHOPP account is the primary source of funding for storm water-related capital expenses. Storm water compliance costs are not consistently reported in the annual reports; however, the 2008-09 annual report contains sufficient information to make an estimate. The capital value of the SHOPP "storm water mitigation element" for fiscal years 2009-10 through 2012-13 is \$640 million, including capital outlay support, or about \$160 million per year.

Using average personal services and operating expenses for the last four years (\$88 million) and average annual programmed SHOPP funding, the Department's expenditures to comply with the Existing Permit amount to approximately \$248 million.

As stated above, the Department has estimated cost of compliance with the Draft Tentative and Revised Draft Tentative Orders variously at \$281 to \$904 million. These estimates are based on "worst case scenarios" and on the most restrictive interpretations of the Orders' requirements. In preparing the Second Revised Tentative Order, staff worked to provide greater clarity and certainty to the Department on the scope of permit obligations and to eliminate compliance costs that were not expected to yield significant water quality benefits. With the exception of a lowering of the post-construction treatment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to 5,000 square feet³⁴, no requirements have been added to the Second Revised Draft Tentative Order that would materially increase the cost of compliance over the Revised Draft Tentative Order. In contrast, a number of substantive requirements have been removed, replaced or modified from the Revised Draft Tentative Order with the goal of focusing the Department's limited resources on the most significant water quality issues. These changes are expected to result in a lower cost of compliance with the Second Revised Draft Tentative Order as compared to the Revised Tentative Order. These include:

³⁴ The threshold was lowered for consistency with the draft statewide Phase II Small MS4 General Permit and with regional MS4 permits.

1. Water quality monitoring program.
 - a. Replaced random compliance-driven monitoring approach with a tiered approach focusing on ASBS and TMDL watersheds, and deferring to the monitoring requirements specified in the ASBS Special Protections and TMDLs.
 - b. Deleted sampling pool, water quality action levels, and response process flow chart.
 - c. Removed 29 constituents from the monitoring constituent list.
 - d. Limited the monitoring for new constituents to TMDL watersheds.
 - e. For sites with existing monitoring data, limited BMP retrofits to 15 percent of the highest priority sites.
 - f. Deleted the long-term monitoring program.
 - g. Deleted maintenance facility compliance monitoring.
2. Project Planning and Design.
 - a. Raised the treatment threshold for highway projects from 5,000 square feet of new impervious surface to one acre.
 - b. Deleted the requirement for pilot Low Impact Development retrofits and effectiveness evaluations.
3. Hydromodification.
 - a. Removed requirement for programmatic stream stability assessments and a retrofit implementation schedule.
 - b. Raised the risk assessment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to one acre.
4. Region Specific Requirements – removed, modified or scaled back requirements for the San Francisco Bay, Los Angeles, Central Valley, Lahontan, and San Diego Regional Water Boards with the goal of maximizing statewide consistency of requirements for the Department.
5. Construction Program – replaced requirement to inspect contractor operations outside the ROW with a requirement to include compliance language in its construction contracts.
6. TMDLs – Revised Attachment IV to more precisely identify the TMDLs applicable to the Department and shifted responsibility to prepare TMDL implementation plans from the Department to the Regional Water Boards.
7. ASBS – Added Attachment III to identify priority Department ASBS outfalls for installation of controls.
8. Maintenance Program.
 - a. Deleted the requirement to report the amount of waste and debris removed from drainage inlets.
 - b. Replaced the site-by-site characterization of waste management sites with a programmatic characterization.
 - c. Deleted the requirement to prepare and implement a storm drain system survey plan.

- d. Replaced quantitative measurements of trash and litter removal with estimated annual volumes.

9. Non-Storm Water.

- a. Deleted surveillance monitoring of agricultural return flows.
- b. Deleted characterization monitoring of slope lateral drains.

Though no firm conclusions or precise estimates can be drawn from this analysis, it is expected that the revisions to the Revised Draft Tentative Order will significantly reduce the cost of compliance.

ATTACHMENT I Incident Report Form

Type of incident: <input type="checkbox"/> Field <input type="checkbox"/> Administrative	
Name of person completing this form: _____	Person's agency name and address: _____
	Person's phone and e-mail: _____

For Field incidents complete Sections 1 and 3. For Administrative incidents complete Section 2. See Non-Compliance Notification Schedule on Page 2.

SECTION 1: Field incidents

Date(s) and time(s) of incident:	1. Start date / time:
	2. End date / time:
Location of Incident: County: _____	3. Nearest city / town:
	4. Street address / nearest cross street:
	5. Latitude / Longitude:
	6. Additional location detail:
Materials involved in the incident: (use Comments Section below if necessary):	6. Name(s) of material(s) discharged:
	7. Approximate quantity discharged (specify units):
	8. Approximate concentration of material:
Discharge to surface water? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 9-11	9. Name of waterbody:
	10. Apparent effects (if any) on waterbody:
	11. Estimated extent of impacts to waterbody:
Was CalEMA notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 12-14	12. Date and time of notification:
	13. Name of person making the notification:
	14. Phone number of person making the notification:
Was the Regional Water Board (RWB) notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 15-17	15. Name of RWB contact:
	16. RWB contact's phone / e-mail:
	17. Name of person making the notification:
Were downgradient communities / people notified? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, answer questions 18 - 20	18. Date and time of notification:
	19. Name of person making the notification:
	20. Phone number of person making the notification:
	21. Name of downgradient community/ person:

Field Non-Compliance (check all that apply)

<input type="checkbox"/>	Lack of BMP(s), ineffective implementation of BMP(s), or failure of BMP(s) resulted in a discharge of pollutants to surface water.
<input type="checkbox"/>	Monitoring data indicates an exceedance of a defined standard. Defined standards include TMDL Waste Load Allocations, and water quality standards in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, including California Ocean Plan limitations and prohibitions.
<input type="checkbox"/>	Discharge of prohibited non-storm water.
<input type="checkbox"/>	Failure to comply with Facility Pollution Prevention Plan (FPPP) requirements.
<input type="checkbox"/>	Failure to comply with inspection, monitoring, and reporting requirements and protocols.
<input type="checkbox"/>	Other (describe - use Comments Section below if needed):

SECTION 2: Administrative Non-Compliance (check all that apply)

<input type="checkbox"/>	Failure to submit reports or documents required by the Permit and/or SWMP, failure of timely submittal, and/or failure to submit required information.
<input type="checkbox"/>	Failure to develop and/or maintain a site-specific FPPP or to implement any other procedural requirement of the Permit.
<input type="checkbox"/>	Other (describe - use Comments Section below if needed):

SECTION 3: Description of Incident

Activities in the area prior to the incident (If any):
Initial assessment of any impact caused by the discharge (If any):
Samples collected and analyses requested (If any):
Steps taken to mitigate damage and prevent reoccurrence (If any):
Current Status:
Schedule for proposed mitigation/abatement (If any):
Other Comments:

Non-Compliance Notification Schedule

Type of Incident	Within 5 Working Days (Verbal)	Within 10 Working Days (Written)	Within 30 Calendar Days (Written)	In Annual Report
Emergency Incidents ¹	—	—	—	Chronological summary and status of all incidents
Field ²	Notify RWB Executive Officer	To RWB Executive Officer and copies to Dept. HQ	—	Chronological summary and status of all incidents
Administrative ³	Notify RWB Executive Officer or SWB Contact ³	—	To RWB Executive Officer, SWB Executive Director, and copies to Dept. HQ.	Chronological summary and status of all incidents

¹ Sudden, unexpected, unpreventable incidents that threaten public health, public safety, property, or the environment that pose a clear and imminent danger requiring immediate action to prevent or mitigate the damage or threat, and that result in a discharge or potential discharge.

² Failure to meet any non-administrative requirement of the SWMP or Permit or to meet any applicable water quality standard. This includes failure to install required BMPs or conduct required monitoring or maintenance. It also includes discharges or prohibited non-storm water that do not meet the definition of emergency incidents. It does not include determinations by the Department or a Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS. See provision E.2.c.6)c).

³ Failure to meet any administrative or procedural requirement of the SWMP or Permit including submission of required reports, notifications and certifications. The report of non-compliance shall be submitted to the same organization (State or Regional Water Board) to which the required report was originally due.

<i>Certification – I certify that under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>			
Signature of Contractor (if applicable)	Title	Telephone	Date:
Signature of Department Representative	Title	Telephone	Date:

ATTACHMENT II

Monitoring Constituent List

(Not Applicable to ASBS Discharges)

Constituent	Analytical Method	Reporting Limit ³⁵	Units
<i>WATER COLUMN CHEMISTRY</i>			
Conventional Pollutants			
Hardness as CaCO ₃	SM 2340 B or C	5	mg/L
pH	Calibrated Field Instrument		pH Units
Temperature	Calibrated Field Instrument		C +/-
Flow Rate	Calibrated Field Instrument		ft ³ /s
Total Dissolved Solids	EPA 160.1	1	mg/L
Total Suspended Solids	EPA 160.2	1	mg/L
Hydrocarbons			
Oil & Grease	EPA 1664B	1.4	mg/L
Polycyclic Aromatic Hydrocarbons (Total)	EPA 8310	0.05	µg/L
Nutrients			
Total Kjeldahl Nitrogen (TKN)	EPA 351.3	100	µg/L
Nitrate as Nitrogen (NO ₃ -N)	EPA 300.0	100	µg/L
Phosphorous (Total)	EPA 365.2	30	µg/L
Metals			
Aluminum (Total)	EPA 200.8	25	µg/L
Chromium (Total)	EPA 200.8	1	µg/L
Copper (Total)	EPA 200.8	1	µg/L
Iron (Total)	EPA 200.8	1	µg/L
Lead (Total)	EPA 200.8	1	µg/L
Zinc (Total)	EPA 200.8	5	µg/L
Microbiological			
Fecal Coliform	SM 9221 C E	2	MPN/100 mL
Enterococcus ³⁶	EPA 1600	2	CFU/100 mL
<i>WATER COLUMN TOXICITY</i>			
Chronic ³⁷	EPA 821-R-02-013	Pass/Fail	

³⁵ Reporting limits should be sufficient enough to detect the presence of a constituent based on the applicable Regional Water Board Basin Plan. If no limit is specified in the Basin Plan, the reporting limit specified in this table will be used. If no limit is specified in this table, then the Regional Boards shall be consulted.

³⁶ Only applicable for direct discharges to marine waters. See definition of direct discharges and indirect discharges in Attachment VIII (glossary).

³⁷ To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used.

ATTACHMENT II

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT III

ASBS PRIORITY DISCHARGE LOCATIONS

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAU020A	1	Saunders Reef	-123.65273	38.85916
SAU019A	1	Saunders Reef	-123.6528	38.86067
SAU016A	1	Saunders Reef	-123.65237	38.85849
SAU015	1	Saunders Reef	-123.65178	38.85612
SAU013A	1	Saunders Reef	-123.6514	38.85451
SAU014	1	Saunders Reef	-123.6517	38.8551
SAU011A	1	Saunders Reef	-123.64853	38.8527
SAU008	1	Saunders Reef	-123.6478	38.8521
SAU006A	1	Saunders Reef	-123.64777	38.85186
SAU009A	1	Saunders Reef	-123.64809	38.85254
RED023	1	Redwoods National Park	-124.1017	41.60527
RED027	1	Redwoods National Park	-124.10126	41.59657
RED028	1	Redwoods National Park	-124.10101	41.59729
RED018A	1	Redwoods National Park	-124.1061	41.613
RED015	1	Redwoods National Park	-124.11257	41.62928
RED014	1	Redwoods National Park	-124.11296	41.63059
RED017A	1	Redwoods National Park	-124.10571	41.61195
FIT012	2	James V. Fitzgerald	-122.516861	37.531406
ANO030	3	Ano Nuevo	-122.30121	37.11334
ANO033	3	Ano Nuevo	-122.29881	37.11202
ANO001	3	Ano Nuevo	-122.306364	37.121672
ANO002	3	Ano Nuevo	-122.30534	37.11987
ANO035	3	Ano Nuevo	-122.29297	37.10714
ALT004	4	Laguna Point to Latigo Point	-119.059097	34.08609
MUG005	4	Laguna Point to Latigo Point	-119.03821	34.083896
ALT005	4	Laguna Point to Latigo Point	-119.054291	34.085415
ALT006	4	Laguna Point to Latigo Point	-119.048653	34.085361
MUG008	4	Laguna Point to Latigo Point	-119.036389	34.083644
MUG010	4	Laguna Point to Latigo Point	-119.014826	34.070804
MUG013	4	Laguna Point to Latigo Point	-118.993551	34.065445
MUG016	4	Laguna Point to Latigo Point	-118.987069	34.062852
ALT008	4	Laguna Point to Latigo Point	-118.985931	34.062325

ATTACHMENT III

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
MUG028	4	Laguna Point to Latigo Point	-118.974165	34.058928
ALT009	4	Laguna Point to Latigo Point	-118.975975	34.059978
MUG031	4	Laguna Point to Latigo Point	-118.968706	34.056265
MUG041	4	Laguna Point to Latigo Point	-118.964271	34.053461
MUG046	4	Laguna Point to Latigo Point	-118.960862	34.052112
MUG048	4	Laguna Point to Latigo Point	-118.9594833	34.05172
MUG049	4	Laguna Point to Latigo Point	-118.9594333	34.05165
MUG051	4	Laguna Point to Latigo Point	-118.957316	34.050937
ALT011	4	Laguna Point to Latigo Point	-118.939404	34.045355
MUG053	4	Laguna Point to Latigo Point	-118.95539	34.050248
MUG059	4	Laguna Point to Latigo Point	-118.9515	34.048835
MUG058	4	Laguna Point to Latigo Point	-118.95042	34.048355
ALT010	4	Laguna Point to Latigo Point	-118.948184	34.047873
MUG061	4	Laguna Point to Latigo Point	-118.94834	34.047675
MUG077	4	Laguna Point to Latigo Point	-118.9345833	34.04513
MUG078	4	Laguna Point to Latigo Point	-118.934358	34.045431
MUG070	4	Laguna Point to Latigo Point	-118.9320000	34.04600
MUG066	4	Laguna Point to Latigo Point	-118.924654	34.04714
MUG073	4	Laguna Point to Latigo Point	-118.922723	34.046418
MUG135	4	Laguna Point to Latigo Point	-118.897426	34.041983
MUG147	4	Laguna Point to Latigo Point	-118.894154	34.041553
MUG150	4	Laguna Point to Latigo Point	-118.889212	34.040872
MUG187	4	Laguna Point to Latigo Point	-118.869505	34.039285
SAD0950	4	Laguna Point to Latigo Point	-118.8385500	34.02699
SAD0960	4	Laguna Point to Latigo Point	-118.8375000	34.02619
SAD0970	4	Laguna Point to Latigo Point	-118.8364600	34.02535
SAD0980	4	Laguna Point to Latigo Point	-118.8348600	34.02435
MUG318	4	Laguna Point to Latigo Point	-118.834316	34.023879
SAD0990	4	Laguna Point to Latigo Point	-118.8326600	34.02302
SAD1000	4	Laguna Point to Latigo Point	-118.8303400	34.02123
MUG355	4	Laguna Point to Latigo Point	-118.829258	34.02122

ATTACHMENT III

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAD1030	4	Laguna Point to Latigo Point	-118.827049	34.018711
SAD1040	4	Laguna Point to Latigo Point	-118.8256600	34.01748
SAD1050	4	Laguna Point to Latigo Point	-118.8249200	34.01700
SAD1060	4	Laguna Point to Latigo Point	-118.8225400	34.01559
ALT017	4	Laguna Point to Latigo Point	-118.777059	34.025805
MUG346	4	Laguna Point to Latigo Point	-118.783588	34.02508
MUG283	4	Laguna Point to Latigo Point	-118.765915	34.02589
IRV020	8	Irvine Coast	-117.840190	33.576001
IRV009	8	Irvine Coast	-117.830393	33.566251
IRV007	8	Irvine Coast	-117.828078	33.565343
IRV001	8	Irvine Coast	-117.81858	33.558
IRV002	8	Irvine Coast	-117.821484	33.560705
CAR007B	3	Carmel Bay	-121.923798	36.52499
CAR006	3	Carmel Bay	-121.92457	36.52469

ATTACHMENT IV

Total Maximum Daily Load Requirements

Attachment IV prescribes the implementation requirements for the Total Maximum Daily Loads (TMDLs) in which the Department of Transportation (Department) has been identified as a responsible party. The TMDLs in this attachment have been (1) adopted by the Regional Water Quality Control Boards (Regional Water Boards) and approved by the State Water Resources Control Board (State Water Board) and the Office of Administrative Law or the United States Environmental Protection Agency (U.S. EPA), or (2) established by U.S. EPA.

Section I of this attachment provides directions and general guidance on development of a prioritized list of reaches for implementation actions. Section II identifies the applicable TMDLs and implementation requirements. Section II also contains TMDL-specific permit requirements for the Lake Tahoe Sediment/Nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. Section III prescribes the general implementation requirements applicable to all TMDLs, and the specific requirements applicable to each pollutant category.

The TMDLs addressed in this attachment were developed by numerous parties over many years, and vary widely in their implementation requirements. As explained in further detail in the Fact Sheet for this Order, Attachment IV establishes consistent implementation requirements among the TMDLs by separating them into one of eight categories by pollutant type, based upon the common treatment and control actions associated with each pollutant type. Each impaired waterbody will be prioritized for implementation by reach, with a fixed number of “compliance units” that must be achieved each year so that all TMDLs are addressed in 20 years. Effectiveness monitoring of the treatment and control actions is required to inform an adaptive management process.

The following eight TMDL pollutant categories have been established for TMDL implementation³⁸:

1. Sediment/Nutrients/Mercury/Siltation/Turbidity
2. Metals/Toxics/Pesticides
3. Trash
4. Bacteria
5. Diazinon
6. Selenium
7. Temperature
8. Chloride

The Department shall comply with the requirements of Attachment IV. These requirements are directly enforceable through Order 2012-0011-DWQ (Order).

³⁸ Some TMDLs containing multiple pollutants have been separated according to the categories that best address the individual pollutants.

ATTACHMENT IV

Section I. TMDL Prioritization and Implementation

A. Reach Prioritization for Pollutant Categories

The Department shall prioritize all TMDLs for implementation of source control measures and best management practices (BMPs). Prioritization shall be consistent with the final TMDL deadlines to the extent feasible. Prioritization shall be conducted separately for each pollutant category and shall be based on an evaluation of each reach of applicable receiving waters within the watershed with a TMDL. The Department shall conduct the prioritization using the following five steps:

1. Complete an inventory of reaches. If reaches are defined in a TMDL, the Department may use that delineation for developing the inventory. If no reaches are specified in the TMDL, the Department shall delineate the receiving water into reaches.
2. Segregate the inventory of reaches according to the pollutant categories listed below in Section III, B through I (Categorical Inventories of Reaches). Individual reaches may be present in multiple pollutant categories.
3. Rank the reaches in each TMDL category in accordance with a procedure similar to that presented in Table IV.1. below.
4. Submit the prioritized Categorical Inventories of Reaches to the State Water Board **by October 1, 2014**, for Regional Water Board and State Water Board consideration. The State Water Board will provide public notice of the submission and the submission will be subject to a 30-day public comment period.
5. The Department shall collaborate with the State Water Board and Regional Water Boards on a final prioritization for each of the Categorical Inventories of Reaches. Factors that may be considered in the final prioritization will include, but not be limited to:
 - a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS,
 - b. Multiple TMDLs that can be addressed by a single BMP or a suite of BMPs within a reach,
 - c. TMDL deadlines specified in a Basin Plan,
 - d. Regional Water Board and State Water Board priorities,
 - e. Accessibility for construction and/or maintenance (e.g., safety considerations), and
 - f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

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B. Implementation

Following completion of the process described in Section I.A, the State Water Board Executive Director will approve, with any changes, the final prioritized Categorical Inventories of Reaches. The Department shall then select and begin implementation actions, as specified in Sections II and III, within the highest priority reaches to achieve at least the minimum number of compliance units as described below.

1. The Department shall include the following information regarding implementation of control measures in the selected reaches for the upcoming reporting period in the **TMDL STATUS REVIEW REPORT**, as required in Section E.4.b. of the Order:
 - a. Name of the waterbody,
 - b. Associated TMDL(s),
 - c. Proposed control measures,
 - d. Proposed number of compliance units per control measure, and
 - e. Projected schedule for installation of control measures with anticipated beginning and ending dates.

2. The Department shall also include in the **TMDL STATUS REVIEW REPORT**³⁹ a discussion of previous years' activities including:
 - a. The status of implementation activities,
 - b. The location of the control measures,
 - c. The size and type of BMPs that were installed,
 - d. The effectiveness of the BMPs installed, including any pertinent monitoring data (e.g., influent vs. effluent data),
 - e. A summary update of any cooperative implementation agreements (see Attachment IV, section II.B.1), including those that are solely for each TMDL,
 - f. A summary update of activities and/or actions that have been completed for any cooperative implementation agreement for each TMDL,
 - g. A summary update of projects initiated under the cooperative implementation grant program (see Attachment IV, section II.B.2),
 - h. A summary update of activities and/or actions that have been completed for any projects under the cooperative implementation grant program,
 - i. A summary of institutional control measures implemented to comply with Attachment IV,
 - j. A summary of TMDLs adopted during the past year where the Department is assigned a WLA or the Department is identified as a responsible party in the implementation plan,
 - k. A discussion, supported by data and analysis, of whether the Department considers work in the reach complete because it has met WLAs and other TMDL performance criteria, and

³⁹ Per section III.A.3.a of this attachment, by January 1, 2015, the Department shall submit the required information regarding planned implementation of control measures for the first upcoming reporting period (after permit amendment per Order WQ 2014-0077-DWQ) of January 1, 2015 – October 1, 2015.

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- I. Any other information requested by the State Water Board Executive Director or designee.

Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director of the State Water Board or designee.

3. Each year the Department shall select and begin implementation activities within the highest priority reaches to achieve a minimum of 1650 compliance units. A compliance unit is defined as one acre of the Department's Right-of-Way (ROW) from which the runoff is retained, treated, and/or otherwise controlled prior to discharge to the relevant reach. Compliance units may be credited to the Department for the following actions:
 - stand-alone BMP retrofits,
 - cooperative implementation,
 - monitoring program-related retrofits,
 - post-construction treatment beyond permit requirements, and
 - other pollution reduction practices necessary to comply with the TMDL.

Compliance units, unless specifically stated below, are credited only when the Department begins implementation of an action listed above.⁴⁰ Once compliance units have been credited for a site, the Department may not receive credit for additional compliance units at that location for additional activities or corrective measures needed to bring the site into compliance. See Section III.A.2. Credit may be received, however, for new activities within the same reach that do not treat the runoff from a site that has already received treatment.

4. The Department may receive credit for compliance units by contributing funds to Cooperative Implementation Agreements and/or the Cooperative Implementation Grant Program (see Section II.B. below). The Department may receive credit for one compliance unit for each \$88,000 that it contributes. For Cooperative Implementation Agreements, the credit will be received when the Department transfers the funds to a responsible party. For the Cooperative Implementation Grant Program, the credit will be received when the Department transfers the funds to the State Water Board.
5. No credit will be given to post-construction BMPs that only meet the minimum requirements of this Order (Section E.2.d.2)a)). Other projects within a TMDL watershed where treatment is provided above and beyond the post-construction requirements in this Order, may receive compliance units according to the following formula:

⁴⁰ For purposes of Section I.B of this attachment, implementation means that a project has entered the Project Initiation Document (PID) phase, the process used by the Department to explain the scope, funding commitment, and approval of a transportation project (<http://www.dot.ca.gov/hq/oppd/pdpm/other/PDPM-Chapters.pdf>).

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$$[(V_t - V_o) / p_{85}] * 12 = \text{acres treated (compliance units calculated to the nearest 0.1)}$$

Where, V_t = Planned volume of runoff to be treated (acre-ft.),

V_o = Volume of runoff from 85th percentile, 24-hour storm event (acre-ft.),

p_{85} = depth of the 85th percentile, 24-hour storm event (inches).

Table IV.1 – Reach Prioritization Scoring Matrix

The rating factors in this table are intended as guidance. Each pollutant category will be ranked separately.

Rating Factor	Criteria		
	<u>High</u>	<u>Medium</u>	<u>Low</u>
Impairment Status: Percent reduction needed	Over 75%	25% - 75%	Below 25%
Department's Drainage Area Contributing to the Reach	Over 5% of drainage area	Between 1% and 5% of drainage area	Less than 1% of drainage area
Proximity to Receiving Waters	Over 75% of ROW within 0.25 miles of reach	Between 25% and 75% of ROW within 0.25 miles of reach	Less than 25% of ROW within 0.25 miles of reach
Community Environmental Health Impact	Top 3 categories	Middle 4 categories	Lower 3 categories

Impairment Status

The degree of impairment of the waterbody, measured by the percent pollution reduction needed to achieve the WLA. Reaches with higher degrees of impairment will be given higher priority. Consider all sources of impairment when making this determination.

Department's Contributing Drainage Area

The contributing drainage area from the Department's ROW is relative to the watershed draining to the reach.

Proximity to Receiving Waters

This rating factor measures the relative proximity of the Department's ROW to the reach of the water that receives runoff from the Department's ROW. Sites discharging through conveyances within 0.25 miles of the pertinent reach are considered to have greater potential to contribute pollutants and receive a higher rating.

Community Environmental Health Impact

This rating factor requires use of the California Office of Health Hazard Assessment (OEHHA) evaluation tool "Enviroscreen" which can be found at <http://oehha.ca.gov/ej/ces11.html>. This tool should be used to assess environmental justice issues. Outcomes are segregated into 10 categories ranging from low to high environmental justice scores. Higher scores indicate that there is a higher potential for environmental justice issues to be present at a site.

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Section II. Applicable TMDLs and Implementation Requirements

A. For each reach for which the Department has committed to begin implementation actions in accordance with Section I of this attachment, the Department shall do one of the following:

1. Implement the requirements in Table IV.2 applicable to that reach ensuring that all BMPs installed meet the minimum requirements specified in the following permit sections:
 - E.2.d.1) (Design Pollution Prevention Best Management Practices),
 - E.2.d.2)b) (Numeric Sizing Criteria for Storm Water Treatment Control BMPs),
 - E.2.e.1) (BMP Development and Implementation, Vector Control),
 - E.2.e.2) (BMP Development and Implementation , Storm Water Treatment BMPs),
 - E.2.e.3) (BMP Development and Implementation, Wildlife), and
 - E.2.e.4) (BMP Development and Implementation, Biodegradable Materials) of this Order.

In addition, the Department shall ensure that all BMPs installed do not cause a decrease in lateral (bank) or vertical (channel bed) stability in receiving stream channels.

2. Demonstrate that it has entered into or intends to enter into a Cooperative Implementation Agreement with other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Agreements.

3. Identify cooperative implementation grants that have been awarded to other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Grant Program.

B. Cooperative Implementation

1. Cooperative Implementation Agreements

- a. The Department is encouraged to establish agreements for cooperative implementation efforts, such as joint implementation actions and/or special implementation studies with other parties that have responsibility for the TMDL, except where precluded by a TMDL or where specific implementation requirements are prescribed in Table IV.2. Cooperative agreements that only involve monitoring are not eligible for compliance units.
- b. Where the Department has existing cooperative implementation agreements with other responsible parties, it shall fulfill the commitments and requirements of those agreements.
- c. Where the Department has not yet committed to cooperative implementation efforts, but intends to do so, the Department must provide written notification,

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including the anticipated date of commitment, to the State Water Board in its ***TMDL STATUS REVIEW REPORT***.

- d. Cooperative agreements relative to the TMDL implementation activity are subject to approval by the applicable Regional Water Board Executive Officer. Cooperative agreements shall describe the terms of the mutually agreed activities to be performed, and at a minimum shall include:
 - i. The date the cooperative agreement was approved by the Regional Water Board,
 - ii. A map showing the location of work to be performed in the reach,
 - iii. Any monitoring program parameters and responsibilities,
 - iv. Any implementation responsibilities, including BMP Operation and Maintenance,
 - v. Any funding commitments that correspond with the implementation responsibilities, and
 - vi. A termination clause upon failure to comply with the terms and conditions of the agreement, as applicable.
- e. The Department shall submit sufficient information to document the progress in achieving the requirements of the TMDL for each cooperative implementation agreement in its annual ***TMDL STATUS REVIEW REPORT***. (See Section I.B.2.)
- f. If the Department is not participating or has not given notice of its intent to participate in cooperative implementation efforts, or the Department is not fulfilling its cooperative implementation responsibilities under an agreement, it shall immediately comply with applicable TMDL Control Requirements listed in Table IV-2 below and report the corresponding status in the ***TMDL STATUS REVIEW REPORT***.

2. Cooperative Implementation Grant Program

- a. The Department may establish a cooperative implementation grant program to be administered by the State Water Board for TMDL watersheds.
- b. If the Department elects to establish a grant program, the Department and State Water Board will prepare an agreement specifying the terms of the grant program and the commitments and responsibilities of the parties. The Department will be responsible for paying the State Water Boards' cost of administering the grant program.
- c. Cooperative implementation grants will be used to fund capital projects undertaken by other responsible parties in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation grant applications that are consistent with the final prioritized Categorical Inventories of Reaches

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(Section I.A.5) will be given a higher priority for funding. Cooperative implementation grants will not be awarded for projects that only involve monitoring, where precluded by a TMDL, or where specific implementation requirements are prescribed in Table IV.2.

C. Consideration for Factors Affecting Implementation

Implementation may require environmental approvals and permitting from local, State, and/or federal resource agencies (e.g., California Coastal Commission, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, local Flood Control agencies, local County, etc.). Other factors such as safety concerns and technical infeasibility may affect project implementation. Delays or cancellations due to environmental or permitting factors beyond the Department's control must be reported in its annual ***TMDL STATUS REVIEW REPORT***.

The State Water Board will revoke compliance units for projects not completed within the implementation schedule approved under Section I.B.1 of this attachment, unless the delay in the implementation schedule is additionally approved by the Executive Director. Partial credit may be allowed if a portion of the project is completed and functioning.

The State Water Board will revoke compliance units for unrecovered grant funds for projects that are not completed under Section II.B.2 of this attachment. Partial credit may be allowed if a portion of the project is completed and functioning. If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked.

Compliance units revoked shall be added to the total number of the required compliance units in following years. For example, if a project which claimed 20 compliance units is cancelled, 1670 compliance units (1650 + 20) are required to be implemented in the following year. If the grant program is discontinued, additional time may be allowed for the Department to implement the corresponding compliance units.

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Table IV.2. TMDL Summary Table and Control Requirements

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R1 - North Coast Regional Water Board			
Albion River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Big River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Lower Eel River	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 18, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Middle Fork Eel River	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 2003 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
South Fork Eel River	Sediment and Temperature	<i>U.S. EPA Established TMDL</i> Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury)	Temperature and Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Garcia River	Sediment	Effective Date: March 16, 1998 BPA: 4-37.00 Action Plan for the Garcia River Watershed Resolution:	Implement Section III.A. and Section III.B.
Gualala River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: November 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Klamath River in California	Temperature, Dissolved Oxygen, Nutrients, and Microcystin	Effective Date: December 28, 2010 BPA: Action Plan for Klamath River TMDLs Resolution: R1-2010-0026	Implement, Section III.A., Section III.B., Section III.H. In addition, the Department shall refer to the Section E.2.d.4) of this Order for locating, assessing, and remediating barriers to fish passage.
Lost River	Nitrogen, Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments	Effective Date: December 30, 2008 BPA: Action Plan for Lost River TMDL Resolution: R1-2010-0026	Implement Section III.A. and Section III.B.
Mad River	Sediment and Turbidity	<i>U.S. EPA Established TMDL</i> Effective Date: December 21, 2007 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Navarro River	Sediment and Temperature	<i>U.S. EPA Established TMDL</i> Effective Date: December 27, 2000 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Noyo River	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Redwood Creek	Sediment	<i>U.S. EPA Established TMDL</i> Effective Date: December 30, 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Scott River	Sediment and Temperature	Effective Date: August 11, 2006 BPA: Action Plan for Scott River. Resolutions: R1-2005-0113 & R-2010-0026	Implement Section III.A., Section III.B., and Section III.H.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Shasta River	Dissolved Oxygen and Temperature	Effective Date: January 26, 2007 BPA: Action Plan for the Shasta River Watershed Resolution: R1-2006-0052	Implement Section III.A., Section III.B., and Section III.H.
Ten Mile River	Sediment	U.S. EPA Established TMDL Effective Date: December 2000 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Trinity River	Sediment	U.S. EPA Established TMDL Effective Date: December 20, 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
South Fork Trinity River and Hayfork Creek	Sediment	U.S. EPA Established TMDL Effective Date: December 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Van Duzen River and Yager Creek	Sediment	U.S. EPA Established TMDL Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
R2 - San Francisco Bay Regional Water Board			
Napa River	Sediment	Effective Date: January 20, 2011 BPA: Chapter 7, Water Quality Attainment Strategies including TMDLs Resolution: R2-2009-0064	Implement Section III.A., Section III.B., and the following: <ul style="list-style-type: none"> • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
			<p>TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.</p> <ul style="list-style-type: none"> • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.
Richardson Bay	Pathogens	Effective Date: December 18, 2009 BPA: Pathogens in Richardson Bay Resolution: R2-2008-0061	Implement Section III.A. and Section III.E.
San Francisco Bay	PCBs	Effective Date: March 29, 2010 BPA: Exhibit A & TMDL & Implementation Plan for PCBs Resolution: R1-2008-0012	Implement Section III.A. and Section III.C.
San Francisco Bay	Mercury	Effective Date: February 12, 2008 BPA : Chapter 7, SF Bay Mercury TMDL Resolution: R2-2006-0052	Implement Section III.A, Section III.B., and the following: The Department shall work out an equitable mercury WLA scheme in consultation with the San Francisco Bay Area Urban Runoff Management Agencies.
San Pedro and Pacifica State Beach	Bacteria	Effective Date: August 1, 2013 BPA – Chapter 3, Section 3.3.1 Bacteria Resolution: R2-2012-0089	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Sonoma Creek	Sediment	Effective Date: September 8, 2010 BPA: Exhibit A & Implementation Plan Resolution: R2-2008-0103	Implement Section III.A., Section III.B, and the following: <ul style="list-style-type: none"> • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above. • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with TMDL STATUS REVIEW REPORT in accordance with Section I.B. above.
San Francisco Bay Urban Creeks	Diazinon & Pesticide-Related Toxicity	Effective Date: May 16, 2007 BPA: Chapter 3, Toxicity Resolution: R2-2005-0063	Implement Section III.A., Section III.C., and Section III.F.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R3 - Central Coast Regional Water Board			
San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks)	Sediment	Effective Date: February 19, 2004 BPA: Attachment to R3-2002-0063 Resolution: R3-2002-0063	Implement Section III.A. and Section III.B.
Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)	Sediment	Effective Date: January 20, 2004 BPA: Attachment A to R3-2002-0051 Resolution: R3-2003-0051	Implement Section III.A. and Section III.B.
R4 - Los Angeles Regional Water Board			
Ballona Creek	Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	Effective Date: December 22, 2005 and reaffirmed on October 29, 2008 BPA: Attachment A, Chapter 7-12 Resolution: R2007-015	Implement Section III.A., Section III.C., and Section III.G.
Ballona Creek	Trash	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3. Resolution: 2004-0023	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Ballona Creek Trash TMDL.
Ballona Creek Estuary	Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, & Total PAHs)	Effective Date: December 22, 2005 BPA: Attachment A, Chapter 7-14 Resolution: R4-2005-008	Implement Section III.A. and Section III.C.
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria	Effective Date: March 26, 2007 and November 18, 2013 BPA: Attachment A, Chapter 7-21 Resolution: R4-2006-011	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ballona Creek Wetlands	Sediment and Invasive Exotic Vegetation	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Calleguas Creeks, its Tributaries and Mugu Lagoon	Metals and Selenium	Effective Date: March 26, 2007 BPA: Attachment A, Chapter 7-19 Resolution: R4-2006-012	Implement Section III.A., Section III.C., and Section III.G.
Calleguas Creeks its Tributaries and Mugu Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation	Effective Date: March 14, 2006 BPA: Attachment A, Chapter 7-17 Resolution: R4-2005-010	Implement Section III.A., Section III.B, and Section III.C.
Colorado Lagoon	Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals (Pb & Zn)	Effective Date: June 14, 2011 BPA: Attachment K, Chapter 7-38 Resolution: R09-005	Implement Section III.A. and Section III.C.
Dominguez Channel & Greater Los Angeles & Long Beach Harbor Waters	Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-40 Resolution: R11-008	Implement Section III.A. and Section III.C.
Legg Lake	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-27 Resolution: R4-2007-10	Implement Section III.A. and Section III.D.
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., and Section III.E.
Los Angeles Area (Echo Park Lake)	Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, & Trash	<i>U.S. EPA Established</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C., and Section III.D.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Angeles Area (Lake Sherwood)	Mercury	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (North, Center, & Legg Lakes)	Nitrogen & Phosphorus	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (Peck Road Park Lake)	Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C, and Section III.D.
Los Angeles Area (Puddingstone Reservoir)	Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin	U.S. EPA Established Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
Los Angeles River and Tributaries	Metals	Effective Date: December 22, 2005, October 29, 2008, & Reopened and Modified on November 3, 2011 BPA: Attachment A, Chapter 7-13 to 7-13 and Attachment B Resolution: R2007-014 & R10-003	Implement Section III.A. and Section III.C.
Los Angeles River	Trash	Effective Date: December 24, 2008 BPA: Attachment A, Chapter 7-2 Resolution: R4-2007-012	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Los Angeles River Watershed Trash TMDL.
Los Angeles River Watershed	Bacteria	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-39 Resolution: R10- 007	Implement Section III.A and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Cerritos	Metals	<i>U.S. EPA Established</i> Effective Date: March 17, 2010 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Machado Lake	Eutrophic, Algae, Ammonia, and Odors (Nutrients)	Effective Date: March 11, 2009 BPA: Attachment A, to R09-006 Resolution: R08-006	Implement Section III.A. and Section III.B.
Machado Lake	Pesticides and PCBs	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7-38 Resolution: R10- 008	Implement Section III.A. and Section III.C.
Machado Lake	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-26 Resolution: R4-2007-06	Implement Section III.A. and Section III.D.
Malibu Creek Watershed	Bacteria	Effective Date: January 10, 2006, Revised on November 8, 2013 ** BPA: Attachment A, Chapter 7-10 Resolution: 2004-019R & R12-009	Implement Section III.A. and Section III.E.
Malibu Creek and Lagoon	Sedimentation and Nutrients to address Benthic Community Impairments	<i>U.S. EPA Established TMDL</i> Effective Date: July 2, 2013 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Malibu Creek Watershed	Trash	Effective Date: June 26, 2009 BPA: Attachment A, Chapter 7-31 Resolution: R4-2008-007	Implement Section III.A. and Section III.D.
Marina del Rey Harbor	Toxic Pollutants (Cu, Pb, Zn, Chlordane, and Total PCBs)	Effective Date: March 16, 2006 BPA: Attachment A, Chapter 7-18 Resolution: R4-2005-012	Implement Section III.A. and Section III.C.
Marina del Rey Harbor Mothers' Beach and Back Basins	Bacteria	Effective Date: March 18, 2004, Revised on November 7, 2013 ** BPA: Attachment A, Chapter 7-5 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Revolon Slough and Beardsley Wash	Trash	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3 Resolution: 2004-0023	Implement Section III.A. and Section III.D.
San Gabriel River	Metals (Cu, Pb, Zn) and Selenium	<i>U.S. EPA Established TMDL</i> Effective Date: March 26, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.C., and Section III.G.
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	Coliform	Effective Date: January 13, 2012 BPA: Attachment A, Chapter 7-36 Resolution: R10-006	Implement Section III.A. and Section III.E.
Santa Clara River Reach 3	Chloride	Effective Date: December 11, 2008 BPA: Attachment B to Resolution No. R4-2008-012 & R4-2008-012	Implement Section III.A. and Section III.I.
Santa Monica Bay Beaches	Bacteria	Effective Date: June 19, 2003, Revised November 7, 2013 ** BPA: Attachment A, Revised in Chapter 7-4 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.
Santa Monica Bay	DDTs and PCBs	<i>U.S. EPA Established TMDL</i> Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Santa Monica Bay Nearshore & Offshore	Debris (trash & plastic pellets)	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7 Resolution:	Implement Section III.A. and Section III.D.
Upper Santa Clara River	Chloride	Effective Date: April 6, 2010 BPA: Attachment B. Chapter 7-6 Resolution: R4-2008-012	Implement Section III.A. and Section III.I.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ventura River Estuary	Trash	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-25 Resolution: R4-2007-008	Implement Section III.A. and Section III.D.
Ventura River and its Tributaries	Algae, Eutrophic Conditions, and Nutrients	Effective Date: June 28, 2013 BPA: Attachment A, Chapter 7-35 Resolution: R12-011	Implement Section III.A. and Section III.B.
R5 - Central Valley Regional Water Board			
Clear Lake	Nutrients	Effective Date: September 21, 2007 BPA: Attachment 1 to R5-2006-0060 Resolution No.: R5-2006-0060	Implement Section III.A. and Section III.B.
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	Mercury	Effective Date: February 7, 2007 BPA: Attachment 1 to R5-2005-0146 Resolution: R5-2005-0146	Implement Section III.A. and Section III.B.
Sacramento-San Joaquin River Delta Estuary	Methyl mercury	Effective Date: October 20, 2011 BPA: Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento – San Joaquin River Delta Estuary Resolution: R5-2010-0043.	Implement Section III.A. and Section III.B.
R6 - Lahontan Regional Water Board			
<p>Lake Tahoe Sediment and Nutrients TMDL Effective Date: August 16, 2011 BPA: WQ Amendment May 2008 Resolution: 2009-0028</p> <p>Lake Tahoe Sediment Requirements A. Pollutant Load Reduction Requirements The Department must reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by 10%, 7%, and 8%, respectively, by September 30, 2016.</p>			

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
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Pollutant load reductions shall be measured in accordance with the processes outlined in the most recent version of Lake Clarity Crediting Program Handbook. To demonstrate compliance with the average annual fine sediment particle pollutant load reduction requirements, the Department must earn and maintain 298 Lake Clarity Credits for the water year October 1, 2015 to September 30, 2016, and for subsequent water years.

B. Pollutant Load Reduction Plans

The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reduction requirements described in Section A above. The Department shall submit a plan no later than July 15, 2014 that shall include, at a minimum, the following elements:

1. *Catchment registration schedule*

The PLRP shall include a list of catchments that the Department plans to register pursuant to the approved Lake Clarity Crediting Program to meet load reduction requirements. The list shall include catchments where capital improvement projects have been constructed since May 1, 2004 that the Department expects to claim credit for, and catchments where projects will be constructed and other load reduction activities (capital improvements, institutional controls, and other measures/practices implement) taken during the term of this Order.

2. *Proposed pollutant control measures*

The PLRP shall generally describe storm water program activities to reduce fine sediment particle, total phosphorus, and total nitrogen loading that the Department will implement in identified catchments.

3. *Pollutant load reduction estimates*

The Department shall conduct pollutant load reduction analyses on a representative catchment subset to demonstrate that proposed implementation actions are expected to achieve the pollutant load reduction requirements specified in Section A. above. For representative catchments, the analysis shall include detailed estimates of both baseline pollutant loading and expected pollutant loading resulting from implementation actions and provide justification why the conducted load reduction analysis is adequate for extrapolation to other catchments.

The pollutant loading estimates shall differentiate between estimates of pollutant load reductions achieved since May 1, 2004 and pollutant load reductions from actions not yet taken.

4. *Load reduction schedule*

The PLRP shall describe a schedule for achieving the pollutant load reduction requirements described in the

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
<p>Lake Tahoe Sediment TMDL Section A above. The schedule shall include an estimate of expected pollutant load reductions for each year of this Permit term based on preliminary numeric modeling results. The schedule shall also describe which catchments the Department anticipates it will register for each year of this Permit term.</p> <p>5. <i>Annual adaptive management</i> The PLRP shall include a description of the processes and procedures to annually assess storm water management activities and associated load reduction progress. The plan shall describe how the Department will use information from the monitoring and implementation or other efforts to improve operational effectiveness and for achieving the pollutant load reduction requirements specified in Section A.</p> <p>6. <i>Pollutant Load Reduction Plan Update</i> By March 15, 2017, the Department shall update its Pollutant Load Reduction Plan to describe how it will achieve the pollutant load reduction requirements for the second five-year TMDL implementation period, defined as the ten-year load reduction milestone in the Lake Tahoe TMDL. Specifically, the updated Pollutant Load Reduction Plan shall demonstrate how the Department will reduce baseline fine sediment particle, total nitrogen, and total phosphorus loads by 21 percent, 14 percent, and 14 percent, respectively, by water year 2021.</p> <p>C. <i>Pollutant Load Reduction Progress</i> To demonstrate pollutant load reduction progress, the Department shall submit a Progress Report by July 15, 2014 documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011.</p> <p>D. <i>Pollutant Load Reduction Monitoring and Water Quality Monitoring Requirements</i> The Department shall prepare and submit a Storm water Monitoring Plan for review and approval by the Regional Water Board by July 15, 2013 and implement the approved plan.</p>			
Truckee River	Sediment	Effective Date: September 16, 2009 BPA: WQ Amendment May 2008 Resolution: 2009-0028	Implement Sections III.A. and Section III.B.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R7 - Colorado River Regional Water Board			
Coachella Valley Storm Water Channel	Bacterial Indicators	Effective Date: April 27, 2012 BPA: Attachment 1: Final CVSC Bacteria TMDL Resolution: R7-2010-0028	Implement Section III.A. and Section III.E.
R8 - Santa Ana Regional Water Board			
Big Bear Lake	Nutrients for Dry Hydrological Conditions	Effective Date: September 25, 2007 BPA: Attachment to R8-2006-0023 Resolutions: R8-2006-0023, and R8-2008-0070	Implement Section III.A. and Section III.B.
<p>Lake Elsinore and Canyon Lake Nutrients TMDL Effective Date: September 30, 2005 BPA: Attachment to R8-2004-0037 & R8-2006-0031 Resolution: R8-2007-0083 Implement Section III.A., Section III.B., and the following:</p> <p>Lake Elsinore/Canyon Lake Nutrient TMDL Joint Responsibility Options</p> <ol style="list-style-type: none"> a. The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. The Department shall continue with those actions and remain an active paying Task Force member. b. If the State Water Board is notified that the Department is not fulfilling its Lake Elsinore/Canyon Lake Task Force obligations or if Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies the Department shall make a formal decision six months after the adoption of the Permit Amendment. These decisions must be approved/adopted by the State Board. The Department will then be required to conduct the following activities: <ol style="list-style-type: none"> 1) Within 30 days of such notification, implement a Lake Elsinore and Canyon Lake in-lake monitoring consistent with the TMDL Task Force monitoring program. 2) Within 30 days of such notification, submit a proposed Department facilities monitoring program to evaluate nutrient discharges from the Department's facilities in the Lake Elsinore/Canyon Lake watershed. 			

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
<p>3) Within 30 days of notification, develop and implement a Lake Elsinore in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented.</p> <p>4) Within 60 days of notification, develop and implement a Canyon Lake in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented.</p> <p>5) Within 60 days of notification, submit an annual monitoring report by August 15th of each year.</p> <p>6) Submit an annual in-lake nutrient reduction program status report by August 15th of each year</p>			
Rhine Channel Area of Lower Newport Bay	Chromium and Mercury	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
San Diego Creek and Newport Bay, including Rhine Channel	Metals (Copper, Lead, & Zinc)	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
San Diego Creek and Upper Newport Bay	Cadmium	<i>U.S. EPA Established TMDL</i> Effective Date: June 14, 2002 BPA: N/A	Implement Section III.A. and Section III.C
San Diego Creek Watershed	Organochlorine Compounds (DDT, Chlordane, PCBs, & Toxaphene)	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.
Upper & Lower Newport Bay	Organochlorine Compounds (DDT, Chlordane & PCBs)	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.

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Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R9 - San Diego Regional Water Board			
Chollas Creek	Diazinon	Effective Date: November 3, 2003 BPA: Attachment A to Resolution: R9-2002-0123	Implement Section III.A. and Section III.F.
Chollas Creek	Dissolved Copper, Lead and Zinc	Effective Date: December 18, 2008 BPA: Attachment A Resolution: R9-2007-0043	Implement Section III.A and Section III.C.
Rainbow Creek	Total Nitrogen and Total Phosphorus	Effective Date: March 22, 2006 BPA: Attachment A Resolution: R9-2005-0036	Implement Section III.A. and Section III.B.
Project 1- Revised Twenty Beaches & Creeks in the San Diego Region (including Tecolote Creek)	Indicator Bacteria	Effective Date: June 22, 2011 BPA: Attachment A Resolution: R9-2010-001	Implement Section III.A. and Section III.E.
** OAL Approved, U.S. EPA Approval Pending			

Section III. General and Categorical Requirements

A. General Requirements for All TMDLs:

1. Comprehensive TMDL Monitoring Plan

- a. The Department shall continue to implement existing TMDL water quality monitoring plans, including cooperative water quality monitoring plans that the Department is party to that have already received approval from the Regional Water Board Executive Officer.
- b. The Department shall develop and implement a comprehensive TMDL monitoring plan to be submitted to the State Water Board by January 1, 2015. The comprehensive TMDL monitoring plan shall include existing approved water quality monitoring plans as described in Section III.A.1.a. above, and shall also include monitoring for all TMDLs that do not have existing approved

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water quality monitoring plans. The proposed comprehensive TMDL monitoring plan shall be designed to inform selection of BMPs, to inform future reach prioritization submittals, and to assess the effectiveness of BMP implementation. The Department may propose monitoring by pollutant category and may rely on representative monitoring for BMP effectiveness assessment. The comprehensive TMDL monitoring plan shall include a time-schedule for the implementation of the monitoring plan. The comprehensive TMDL monitoring plan is subject to approval by the Executive Director of the State Water Board.

2. Adaptive Management

The Department shall use monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs. The assessment shall include necessary modifications to control measures to achieve WLAs and other applicable performance standards. Where an assessment indicates that control measures are inadequate to achieve WLAs and other performance standards in a reach, the Department must implement improved control measures/BMPs.

3. Reporting

- a. By January 1, 2015, the Department shall submit the required information in section I.B. of this attachment regarding planned implementation of control measures for the upcoming reporting period (January 1, 2015 – October 1, 2015).
- b. The Department shall summarize the previous year's TMDL monitoring results, deliverables and other actions as specified in its annual **TMDL STATUS REVIEW REPORT**.
- c. The Department shall prepare and submit a **TMDL PROGRESS REPORT** by January 1, 2018, to the State Water Board as part of its report of waste discharge under Provision E.13.c. The **TMDL PROGRESS REPORT** shall be presented to the State Water Board as an informational item and include the following information:
 - i. A summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of the BMP effectiveness assessment,
 - ii. A determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines,
 - iii. Where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants,
 - iv. A summary of the estimated quantified amount of pollutants prevented from entering into the receiving waters as a result of BMPs, cooperative agreements, or other source control measures taken, and

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- v. An analysis demonstrating that the level of effort (1650 compliance units/year) during the present permit cycle will be sufficient to achieve WLAs and other performance standards for all TMDLs listed in Table IV.2 by 2034. The analysis must utilize monitoring data if available, pertinent analytical tools, including modeling where appropriate, and provide a reasonable assurance that applicable WLAs and performance criteria will be met.

The **TMDL PROGRESS REPORT** will be subject to public review and comment and will be used in the development of the reissued permit.

B. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDL Control Requirements

Sediment, nutrient and mercury TMDLs identify sediment from roads as a significant or primary source of these pollutants. Measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. Therefore, the Department shall implement control measures to prevent or minimize erosion and sediment discharge. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

C. Metals/Toxics/Pesticides TMDL Control Requirements

1. Fine Particulates

Toxic pollutants and/or heavy metals have a high affinity for adherence to fine sediment, such as particles from tires, brake parts, and the road surfaces. Therefore, the appropriate control measures for metals and toxics are to control erosion and prevent or minimize the discharge of fine sediment. The Department shall implement control measures to prevent the discharge of fine sediment. This can be achieved by intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying runoff flow patterns.

2. Dissolved Fraction Metals

The fraction of metals that are not bound to particulates exists in a dissolved state as free metal ions, as inorganic complexes, or bound to dissolved organic chemicals. Although fine particulate removal also reduces dissolved fraction metals, additional control measures may be necessary for the control of dissolved metals. Typically, treatment for dissolved fraction metals requires physical structures that prevent contaminated runoff from reaching receiving waters, such as infiltration systems that allow runoff water to percolate into soil.

The Department shall propose and implement appropriate control measures to reduce the discharge of dissolved fraction metals to comply with this Order.

3. Pesticides

The Department shall comply with Provision E.2.h.3)b) of this Order which specifies practices for the safe handling and use of pesticides, including

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compliance with federal, State and local regulations, and label directions. This provision also requires site assessments, applicator training, and implementation of integrated pest and vegetation management practices in its vegetation control program.

D. Trash TMDL Control Requirements

Trash in waterbodies reduces habitat for aquatic life, directly impacts wildlife from ingestion or entanglement, impacts human health from pathogens, and impacts the aesthetics of waterbodies.

1. The discharge of trash to receiving waters is prohibited. The Department shall comply with this prohibition in all significant trash generating areas in the watersheds subject to trash TMDL controls, identified as the following:
 - a. Highway on-ramps and off-ramps in high density residential, commercial, and industrial land use areas.
 - b. Rest area and park-and-ride facilities.
 - c. State highways in commercial and industrial land use areas.
 - d. Mainline highway segments identified through pilot studies and/or surveys.
2. The Department shall comply with the discharge prohibition of trash through one of the following control measures:
 - a. Install, operate, and maintain a full capture system, treatment controls, and/or institutional controls for storm drains that service the significant trash generating areas; or
 - b. Coordinate with neighboring municipalities that have jurisdiction over significant trash generating areas and/or priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations) to implement Section III.D.2.a above.
3. The Department shall submit as part of its **TMDL STATUS REVIEW REPORT** a determination of the highway characteristics that may qualify as significant trash generating areas by October 1, 2015, and
4. The Department shall submit as part of its **TMDL STATUS REVIEW REPORT** the status of each of the applicable control measures specified in Section III.D.2 above.

The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for trash impairments.

E. Bacteria TMDL Control Requirements

The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for bacteria impairments.

1. Dry-Weather Flows

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Dry weather non-storm water discharges may significantly increase bacteria loading to receiving waters. Therefore, the Department shall implement control measures to ensure that the effective prohibition of non-storm water discharges (Provision B.2. of this Order) is implemented according to the prioritized work schedule specified in Section I of this attachment. The prohibition of non-storm water discharges can be achieved through infiltration, diversion, or other methods.

2. Wet-Weather Flows

Wet weather storm water discharges also contribute significant bacteria loads to receiving waters. The principal impact is to the water contact recreation beneficial use (REC-1). The Department shall implement control measures/BMPs to prevent or eliminate the discharge of bacteria from its ROW. Source control and preemptive activities such as street sweeping, clean-up of illegal dumping, public education on littering; and BMPs such as retention/detention, infiltration, diversion of storm water prevent or eliminate the discharge of bacteria to receiving waters.

F. Diazinon TMDL Control Requirements

Diazinon is an organophosphate pesticide used in agriculture. It is no longer registered by the California Department of Pesticide Regulation for non-agricultural uses. The Department does not use diazinon on its ROW. The discharge of diazinon is prohibited.

G. Selenium TMDL Control Requirements

Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as significant sources of selenium. The Department shall implement control measures to control the discharge of selenium, unless the Department can demonstrate one of the following:

1. There is no exceedance of an applicable receiving water limitation for selenium in the receiving water(s) at, or immediately downstream of, the Department's outfall(s), or
2. There is no direct or indirect discharge from the Department's outfall(s) to the receiving water during the time period subject to the WLA.

The Department does not have to comply with the monitoring requirements of Attachment II in demonstrating non-exceedance or no discharge of selenium.

H. Temperature TMDL Control Requirements

Maintenance activities may increase receiving water temperatures as a result of vegetation removal and/or erosion and sedimentation. Sedimentation and erosion control measures for temperature impairments are being required in accordance with Section III.B. Therefore, the Department shall:

1. Preserve existing riparian biotic conditions immediately adjacent to receiving waters susceptible to temperature increases,

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2. Provide effective shade near receiving waters susceptible to temperature increases, and
3. Maintain site potential effective shade near receiving waters susceptible to temperature increases.

Alteration of riparian biotic conditions that may increase sedimentation or reduce effective shade shall receive prior written authorization by the applicable Regional Water Board Executive Officer or designee.

Site-specific Potential Effective Shade is defined as the shade equivalent to that provided by topography and potential vegetation conditions at a site. Effective shade is the percentage of direct beam solar radiation that attenuated and scattered before reaching the ground or stream surface from topographic and vegetation conditions. The term "site-specific potential" is defined as the vegetation conditions possible at a location, considering the vegetation species present, and any natural factors that limit vegetation size and density.

I. Chloride TMDL Control Requirements

Elevated levels of chloride in receiving waters affect their beneficial use for agricultural irrigation. Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners. The Department does not discharge significant amounts of chloride and any minimal discharges are expected to be addressed under the requirements of this Order. No additional TMDL implementation actions for control of chloride are required in this attachment.

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REGIONAL WATER BOARD SPECIFIC REQUIREMENTS

PART 1 NORTH COAST REGION

1. North Coast Regional Water Board Resolution R1-2004-0087 directs its staff to utilize existing regulatory programs to address sources of sediment within sediment impaired watersheds. The Department owns road right-of-way and other property within watersheds that are listed as impaired for sediment. Some of these facilities have sources of sediment (eroding shoulders, failed culverts, unstabilized cut and fill slopes, etc) that discharge into sediment impaired waterbodies. Consistent with Resolution R1-2004-0087 and the Water Quality Control Plan for the North Coast Region, the Department shall take the following steps in watersheds listed for sediment to identify, prioritize and control sources of sediment that discharge anthropogenic amounts of sediment into impaired waters. These requirements are in addition to any watershed-specific TMDL implementation requirements listed in Attachment IV of this Order. Steps to be taken include:
 - a. Inventory: Identify sources of excess sediment or threatened discharge, and quantify the discharge or threatened discharges from the source(s).
 - b. Prioritize: Prioritize efforts to control discharge of excess sediment based on, but not limited to, severity of threat to water quality and beneficial uses, the feasibility of source control, and source site accessibility. The inventory and prioritized steps shall be completed within two (2) years of the adoption of this Order and updated annually. This step is not required if the Department is implementing the requirements of Attachment IV for sediment TMDLs as the given reaches have already been prioritized within the context of statewide implementation.
 - c. Implement: Develop and implement feasible sediment control practices to prevent, minimize, and control the discharge.
 - d. Monitor and Adapt: Use monitoring results to direct adaptive management measures in order to refine and adjust erosion control practices and implementation schedules, until sediment discharge is reduced and no longer causes a violation of any sediment related narrative or numeric objective.

Each District within the North Coast Region shall include a time schedule for the above-referenced activities within the District Workplan for Regional Water Board approval. The time schedule shall implement the required activities as quickly as feasible. An annual update on activities and compliance with the projected time schedule shall be included in each subsequent annual report.

2. Removal of riparian vegetation may result in a threatened discharge or an exceedance of a water quality objective. The North Coast Region has many

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watersheds that are impaired for excess sediment and temperature. Riparian vegetation shall be protected and restored to the greatest extent feasible and removal may require permitting by the Regional Water Board.

PART 2 SAN FRANCISCO BAY REGION

1. High Trash Generation Areas

The Department shall demonstrate compliance with Discharge Prohibition 7, Table 4-1 of the San Francisco Bay Regional Water Board Basin Plan through the timely implementation of control measures in all high trash generating areas in the San Francisco Bay Region, identified as the following:

- a. Freeway on- and off-ramps in high density residential, commercial and industrial land uses.
- b. Rest areas and park-and-rides.
- c. State highways in commercial and industrial land use areas.
- d. Other freeway segments as identified by maintenance staff and/or trash surveys.

2. Control Measures

The Department shall comply with the prohibition of discharge for trash through implementation of the following control measures:

- a. Install, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchments that service the significant trash generating areas.
- b. Coordinate with neighboring MS4 permittees to construct, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls in high trash generating areas and/or priority land use areas (high density residential, industrial, commercial, and public transportation stations).

All installed devices that meet the full trash capture definition (See "Full Capture System", Attachment VIII) may be counted toward this requirement regardless of date of installation.

3. Coordination with Local Entities

The Department may choose to establish a municipal coordination plan to design, build, operate, and/or maintain controls in conjunction with other watershed stakeholders. The Minimum Full Trash Capture requirement may be met with the Department specific activities and devices, or from load reduction resulting from municipal coordination implementation, or any combination thereof, so long as the municipal coordination activities meet the full trash capture standard.

4. Assessment

The Department shall assess the effectiveness of enhanced maintenance controls implemented in high trash generation areas. This assessment will include controls implemented in coordination with local municipalities.

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5. Additional

- a. Abate trash from construction and reconstruction projects.
- b. Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.

6. Reporting

In each Annual Report, as part of the **TMDL STATUS REVIEW REPORT**, the Department shall provide a per District summary of the following:

- a. Trash load reduction actions.
- b. Full trash capture installation and maintenance.
- c. Implementation of enhanced maintenance controls.
- d. A map and list of high trash generation areas and the installed controls addressing each area.
- e. The reporting of trash load shall be in a manner approved by the Executive Officer.
- f. Municipal coordination implementation.

7. Storm Water Pump Stations

The Department shall comply with the following implementation measures to reduce polluted water discharges from its pump stations:

- a. Complete an inventory of pump stations within the Department's jurisdiction in the San Francisco Bay Region, including locations and key characteristics⁴¹ and submit to the Regional Water Board by October 1, 2015.
- b. Inspect and collect dissolved oxygen (DO) data from 20 percent of the pump stations once a year (100 percent in five years) after a minimum of a two week antecedent period with no precipitation. DO monitoring is exempted where all discharge from a pump station remains in the storm water collection system or infiltrates into a dry creek immediately downstream.
- c. If DO levels are at or below three milligrams per liter (3 mg/L), apply corrective actions, such as continuous pumping at a low flow rate, aeration, or other appropriate methods to maintain DO concentrations of the discharge above 3 mg/L.
- d. Report inspection and monitoring results in the Annual Report.

⁴¹ Characteristics include name of pump station, latitude and longitude in NAD83, number of pumps, drainage area in acres, dominant land use(s), first receiving water body, maximum pumping capacity of station in gallons per minute (gpm), flow measurement capability (Y or N), flow measurement method, average wet season discharge rate in gpm, dry season discharge (Y, N, or unknown), nearest municipal wastewater treatment plant, wet well storage capacity in gallons, trash control (Y or N), trash control measure, and date built or last updated.

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PART 3 LAHONTAN REGION

The Water Quality Control Plan for the Lahontan Region (Basin Plan) has additional requirements which have been historically applied to the Department's permits and which apply to this NPDES Permit in the Lahontan Region. These requirements include:

1. For projects meeting the criteria specified in Provision E.2.d.of the permit (Project Planning and Design), the following numeric sizing criteria for storm water treatment control BMPs apply:

Where storm water runoff is determined to have connectivity to surface waters and/or is not adequately infiltrated or treated by the natural environment, storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm (1) within the Truckee River Hydrologic Unit (3/4- inch of rain), (2) within the East Fork Carson River and West Fork Carson River Hydrologic Units (one inch of rain), and (3) within the Mammoth Creek Hydrologic Unit above 7,000-foot elevation (one inch of rain). Hydrologic evaluations may be required or may be conducted consistent with the NEAT study described in item No. 2 below to help determine areas where infiltration of the 20-year, one-hour storm is required.

2. In 2009, the Department completed the Natural Environment as Treatment (NEAT) study and report for 38 miles of roadway within the Lake Tahoe Hydrologic Unit. The NEAT approach is consistent with the strategic approach required by this permit. Projects developed within the NEAT study area shall be designed and constructed based on the priority areas identified by the study.
3. Unless granted a variance by the Lahontan Regional Water Board Executive Officer, there shall be neither removal of vegetation nor disturbance of existing ground surface conditions between October 15 of any year and May 1 of the following year, except when there is an emergency situation that threatens the public health or welfare. This prohibition period applies to the Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units and above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region.
4. Project Review Requirements
 - a. The Department shall participate in early project design consultation for all projects within the Lake Tahoe, Truckee River, East and West Forks Carson River and Mammoth Creek Hydrologic Units.
 - b. The Department must solicit Lahontan Regional Water Board staff review when project development/design is at the 20 to 30 percent design level (prior to Project "Approval" and Environmental Document), 60 percent design level, and 90 percent design level (Plans, "Specifications" and Estimates).

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ATTACHMENT VI — STANDARD PROVISIONS

1. **Duty to Comply.** The Department shall comply with all of the conditions of this Order. Any permit noncompliance constitutes a violation of the CWA and the Porter-Cologne Water Quality Control Act, which may be grounds for enforcement action or denial of permit coverage. [40 C.F.R. § 122.41(a)]

The Department shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. [40 C.F.R. § 122.41(a)(1)]

2. **Modification, Revocation and Reissuance, or Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Department for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition.
3. **Enforcement**
 - a. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the State and Regional Water Board.
 - b. Any violation of the Order constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.
 - c. The State and Regional Water Boards may impose administrative civil liability may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law.
 - d. All applications, reports, or information submitted to the State Water Board or Regional Water Boards shall be signed and certified. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 C.F.R. § 122.41(k)]
4. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for the Department in an enforcement action that it would have been necessary to halt or

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reduce the permitted activity in order to maintain compliance with the conditions of this Order. [40 C.F.R. § 122.41(c)]

5. **Duty to Mitigate.** The Department shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. [40 C.F.R. § 122.41(d)]
6. **Proper Operation and Maintenance.** The Department at all times shall properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Department to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems installed by the Department only when necessary to achieve compliance with the conditions of this Order. [40 C.F.R. § 122.41(e)]
7. **Property Rights.** This Order does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations. [40 C.F.R. § 122.41(g)]
8. **Duty to Provide Information.** Within a reasonable time specified by the State Water Board, Regional Water Boards, or U.S. EPA, the Department shall furnish records, reports, or information required to be kept by this Order, and shall furnish any information requested to determine whether cause exists for modifying, revoking, and reissuing, or terminating this Order or to determine compliance with this Order. [40 C.F.R. § 122.41(h)]
9. **Inspection and Entry.** [40 C.F.R. § 122.41(i)] Upon the presentation of credentials and other documents as may be required by law, the Department shall allow the State and Regional Water Boards, or U.S. EPA to:
 - a. Enter upon the Department's premises where a regulated facility or activity is located or conducted or where records are required to be kept under the conditions of this Order;
 - b. Have access to and copy at reasonable times any records that must be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times for the purposes of assuring ensuring permit compliance, or as otherwise authorized by the Clean Water Act.

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10. **Monitoring and Records.** [40 C.F.R. § 122.41(j)]
- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. The Department shall retain records of all monitoring information for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the State Water Board's Executive Director or Regional Water Board's Executive Officer at any time.
 - c. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. subchapters N or O.
 - e. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.
11. **Signatory Requirements.** All reports, certifications, and records required by this Order or requested by the State Water Board and Regional Water Boards or U.S. EPA shall be signed by either a principal executive officer or by a duly authorized representative. A person is a duly authorized representative only if [40 C.F.R. §§ 122.22 & 122.41(k)]:
- a. The authorization is made in writing by the principal executive officer; and
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the Department. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

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If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, the Department shall provide a new authorization prior to submittal of any reports, certifications, or records signed by the newly authorized representative.

12. **Certification.** Any person signing documents under Provision 11 above shall make the following certification [40 C.F.R. § 122.22(d)]:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. **Reporting Requirements.**

- a. *Planned changes.* The Department shall give advance notice to the State Water Board and the appropriate Regional Water Board of any planned physical alteration or additions to the permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged; [40 C.F.R. § 122.41(l)(1)]
- b. *Anticipated noncompliance.* The Department shall give advance notice to the appropriate Regional Water Board of any planned changes at the permitted facility or activity which may result in noncompliance with Permit requirements; [40 C.F.R. § 122.41(l)(2)]
- c. *Compliance Schedules.* Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each scheduled date; [40 C.F.R. § 122.41(l)(5)]
- d. *Other Information.* Where the Department becomes aware that it failed to submit any relevant facts, or submitted incorrect information in a permit application or in any required report, it shall promptly submit such facts or information [40 C.F.R. § 122.41(l)(8)].
- e. The Department shall submit, except for the Annual Report, one copy of each report required by the permit to the State Water Board. The Department shall also submit one copy to each of the appropriate Regional Water Boards. The Department may choose to submit its properly signed reports electronically

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into SMARTS in the Portable Document Format (PDF) and submit hard copies only upon request of the State or Regional Water Board staff.

14. **Oil and Hazardous Substance Liability.** Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Department from any responsibilities, liabilities, or penalties to which the Department is or may be subject to under Section 311 of the CWA.
15. **Severability.** The provisions of this Order are severable; and if any provision of this Order or the application of any provision of this Order to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.
16. **Availability.** A copy of this Order shall be maintained at the facility and be available at all times to the appropriate facility personnel and to representatives of the Regional Water Boards, State Water Board, or U.S. EPA.
17. **Education.** The Department shall ensure that all personnel whose decisions or activities could affect storm water quality are familiar with the requirements of this NPDES Permit.

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ATTACHMENT VII — LIST OF ACRONYMS & ABBREVIATIONS

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
Basin Plans	Regional Water Quality Control Plans
BCT	Best Conventional Pollutant Control Technology
BMPs	Best Management Practices
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit - NPDES General Permit for Storm Water Discharges Associated with Construction Activities
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
Department	California Department of Transportation (Caltrans)
EC	Electrical Conductivity
EMA	Emergency Management Agency
ESA	Environmentally Sensitive Area
FPPP	Facility Pollution Prevention Plan
GPS	Global Positioning System
Hydromodification	Hydrograph Modification
IC/ID	Illegal Connection/ Illicit Discharge
IGP	Industrial General Permit - NPDES General Permit for Discharges Associated with Industrial Activities Excluding Construction Activities
LA	Load Allocation
LID	Low Impact Development
MEP	Maximum Extent Practicable
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NCIR	Non-Compliance Incident Report
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
Ocean Plan	California Ocean Plan
PAHs	Polycyclic Aromatic Hydrocarbons
POTW	Publicly Owned Treatment Works
Regional Water Board	Regional Water Quality Control Board
ROW	Department Right-of-Way
State Water Board	State Water Resources Control Board
SUSMP	Standard Urban Storm Water Mitigation Plan
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TCGP	Tahoe Construction General Permit
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDRs	Waste Discharge Requirements
WLA	Waste Load Allocation
WQBEL	Water Quality-Based Effluent Limitation
WQO	Water Quality Objective
WQS	Water Quality Standard
Workplans	District Workplans

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ATTACHMENT VIII - GLOSSARY

Acute Toxicity. A chemical stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute. When expressed as toxic units acute (TUa), $TUa=100/96\text{-hour LC } 50 \text{ percent}$. Acute toxicity can also be expressed as lethal concentration 50 percent (LC 50).

Administrative Noncompliance. Failure to comply with the procedural requirements of this Order. Examples include but are not limited to: failure to submit required reports or documents required by the Permit and/or SWMP, missed deadlines or late submittal, and/or failure to submit required information, failure to develop and/or maintain site-specific FPPP or to implement any other procedural requirement of the Permit.

Areas of Special Biological Significance (ASBS). Ocean or estuarine areas designated by the State Water Board that require special protection of species or biological communities to the extent where alteration of natural water quality is undesirable. The California Ocean Plan describes ASBSs as "those areas containing biological communities of such extraordinary value that no risk of change in their environment as the result of man's activities can be entertained". ASBSs are a subset of State Water Quality Protection Areas.

Basin Plans. Basin Plans (regional water quality control plans) are the principal regulatory mechanisms for protection of water quality in California. Basin plans describe the beneficial uses that each water body supports, e.g. drinking, swimming, fishing, and agricultural irrigation; the water quality objectives necessary to protect those uses; and the program implementation needed to achieve the objectives, such as waste discharge permits and enforcement actions.

Batch Plant. A processing plant where concrete or asphalt is mixed before transport to a construction site. Batch plants are considered to be industrial activities as defined in 40 CFR 122.26(b)(14) (iii) and are regulated under the Industrial General Permit.

Beneficial Uses. The uses of the water protected against degradation including, but not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT). Technology-based compliance standard established by the Clean Water Act. BAT is based on consideration of the age of the equipment and facilities involved, the processes employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements) and other factors as deemed appropriate. BAT effluent

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limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT). Technology-based compliance standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. BCT is established by a two-part “cost reasonableness” test, which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BCT. Limits must be reasonable under both tests.

Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs include structural and nonstructural controls, treatment requirements, operation and maintenance procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Non-Approved BMP. Any BMP for maintenance, construction, design pollution prevention, and treatment that are not in the Department’s SWMP (CTSW-RT-02-008) or Statewide Storm Water Quality Practice Guidelines (CTSW-RT-02-009) approved for statewide use.

Post-Construction BMPs. Any structural or non-structural controls that detain, retain, or filter storm water to prevent the release of pollutants to receiving waters after final site stabilization is attained.

Structural BMPs. Any structural facility designed and constructed to mitigate the adverse impacts of storm water runoff (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

Source Control BMPs. Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source. Examples include treatment techniques that use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by controlling the pollutant source.

Treatment Control BMPs. Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

California Ocean Plan (Ocean Plan). The water quality control plan for California near-coastal waters, first adopted by the State Water Resources Control Board in 1972.

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The purpose of the Ocean Plan is to protect the beneficial uses of the State's ocean waters by identifying water quality objectives, setting general waste discharge requirements, and listing discharge prohibitions. In addition, the Ocean Plan is used to develop and update statewide water quality control plans, policies, and standards involving marine waters.

California Toxics Rule. The Federal regulation, found at 40 CFR § 131.38. Establishes water quality criteria (limits) for heavy metals and other toxic compounds for the protection of beneficial uses of surface waters in California.

Catch Basins. A storm drain inlet having a sump below the outlet to capture settled solids, debris, sediment, and prevent clogging.

Chronic Toxicity. The ability of a substance or a mixture of substances to cause harmful effects over an extended period of time. Expressed as toxic units chronic (TUc), $TUc=100/NOEL$, where NOEL is the No Observed Effect Level.

Construction Activity. Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in a land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

Cut and Fill. The process of moving earth by excavating part of an area and using the excavated material for adjacent embankment of fill areas.

Department Airspaces. Any area within the Department's operating right-of-way that can safely accommodate a privately managed use such as: parking lots, self storage units, commercial businesses, light industry, and cellular telephone towers. The Department executes airspace leases with third parties for these uses.

Department Facility. A Maintenance Facility, Non-maintenance Facility, Highway Facility, Industrial Facility, or Vehicle Maintenance.

Maintenance Facility. A facility under Department ownership or control that contains fueling areas, maintenance stations/yards, waste storage or disposal facilities, wash racks, equipment or vehicle storage and materials storage areas.

Non-maintenance Facility. Laboratories or office buildings used exclusively for administrative functions.

Highway Facility. Highways are linear facilities designed to carry vehicular and pedestrian traffic. These include freeways, highways, and expressways as designated by the California Streets and Highway Code and the California legislature. These facilities also include all support infrastructure associated with these freeways, including bridges, toll plazas, inspection and weigh stations, sound walls, retaining

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walls, culverts, vegetated slopes, shoulders, intersections, off ramps, on ramps, over passes, lights, signal lights, gutter, guard rail, and other support

facilities. The support infrastructure is considered a Highway Facility only when accompanied by an increase in highway impervious surface. Otherwise, it is considered a non-highway .

Industrial Facility. A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Non-Highway Facility. For purposes of this permit, a Non-Highway Facility is any facility not meeting the definition of a Highway Facility, including but not limited to rest stops, park and ride facilities, maintenance stations, vista points, warehouses, laboratories, and office buildings.

Discharge. When used without qualification means the discharge of a pollutant.

Direct Discharge. Any discharge from the MS4 that does not meet the definition of an indirect discharge.

Indirect Discharge. Any discharge from the MS4 that is conveyed to the receiving water through 300 feet or more of an unlined ditch or channel as measured between the discharge point from the MS4 and the receiving water.

Discharge of a Pollutant. The addition of any pollutant or combination of pollutants to waters of the United States from any point source, or any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term includes additions of pollutants to waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

District Workplans (DWPs). Annual workplans prepared by each District containing descriptions of all activities and projects to be undertaken in the District that are necessary to implement the SWMP and comply with the requirements of this Order. DWPs are submitted annually with the Annual Report. Formerly known as the Regional Work Plans.

Drainage Inlet. A location where water runoff enters a storm water drainage system that includes streets, gutters, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained and used for the purpose of collecting, storing, transporting or disposing of storm water

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Effluent. Any discharge from the MS4.

Emergency. Any sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

Erosion. The diminishing or wearing away of land due to wind, or water. Often the eroded material (silt or sediment) becomes a pollutant via stormwater runoff.

Erosion occurs naturally, but can be intensified by land disturbing and grading activities such as farming, development, road building, and timber harvesting.

Facility Pollution Prevention Plan (FPPP). A plan that identifies the functional activities specific to the maintenance facility and the applicable BMPs and other procedures utilized by facility personnel to control the discharge of pollutants in storm water. Facilities subject to FPPPs include: maintenance yards/stations; material storage facilities/permanent stockpile locations (if not totally enclosed); equipment storage and repair facilities, roadside rest areas, agricultural and highway patrol weigh stations, decant storage or disposal locations, and permanent and temporary solid and liquid waste management sites.

FPPPs are not required for temporary stockpile locations (in continuous use for less than one year). All temporary stockpile locations shall implement the applicable best management practices defined in the Caltrans Stormwater Quality Handbook Maintenance Staff guide. Any stockpile location in continuous use for more than one year is deemed permanent and requires a Facility Pollution Prevention Plan.

Full Capture System. A full capture system is any single device or series of devices that traps all particles retained by a five (5) mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour, storm in the subdrainage area.

Rational equation is used to compute the peak flow rate: $Q = C \times I \times A$

Where Q = design flow rate (cubic feet per second, cfs);

C = runoff coefficient (dimensionless);

I = design rainfall intensity (inches per hour, as determined per a rainfall isohyetal map), and

A = subdrainage area (acres).

Hydrograph Modification (Hydromodification). The alteration of the hydrologic characteristics of surface waters through watershed development. Under past practices, new and re-development construction activities resulted in urbanization, which in turn modified natural watershed and stream processes. The impacts of hydromodification include, but are not limited to, increased bed and bank erosion,

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loss of habitat, increased sediment transport and deposition, and increased flooding. Urbanization does this by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, and altering the condition of stream channels through straightening, deepening, and armoring. These changes affect hydrologic characteristics in the watershed and affect the supply and transport of sediment in the stream system.

Hydromodification Management Plan. A plan to control and reduce the impacts of hydrograph modification from development activities in a watershed.

Illegal Connection/Illicit Discharge (IC/ID).

Illegal Connection. An engineered conveyance that is connected to an MS4 without authorization by local, state, or federal statutes, ordinances, codes, or regulations.

Illicit Discharge. Any discharge to an MS4 that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. It includes all non-storm water discharges except conditionally exempt non-storm water discharges.

Illegal Dumping. Discarding or disposal within the Department's right-of-way, properties or facilities, either intentionally or unintentionally, of trash and other wastes in non-designated areas that may contribute to storm water pollution.

Impervious Cover. Any surface in the landscape that cannot effectively absorb or infiltrate rainfall; for example, sidewalks, rooftops, roads, and parking lots.

Incidental Runoff. Unintended small amounts (volume) of runoff from landscape irrigation, such as minimal over-spray from sprinklers that escapes the irrigated area. Water leaving an irrigated area is not considered incidental if it is due to improper (e.g. during a precipitation event) or excessive application, if it is due to intentional overflow or application, or if it is due to negligence. Leaks and other discharges (e.g. broken sprinkler heads) are not considered incidental if not corrected within 72 hours of learning of the discharge or if the discharge exceeds 1000 gallons.

Land Use. How land is managed or used by humans (e.g., residential and industrial development, roads, mining, timber harvesting, agriculture, grazing, etc.). Land use is generally regulated at the local level in the U.S. based on zoning and other regulations. Land use mapping differs from land cover mapping in that it is not always obvious what the land use is from visual inspection.

Load Allocation. The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading (40 CFR 130.2(g)).

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Low Impact Development (LID). An approach to land development with the goal of mimicking or replicating the pre-project hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated and distributed micro-scale storm water retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, mature trees, flood plains, woodlands, and highly permeable soils.

Maximum Extent Practicable (MEP). The minimum required performance standard for implementation of municipal storm water management programs to reduce pollutants in storm water. Clean Water Act § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible and are not cost-prohibitive. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the costs would be prohibitive. A final determination of whether a municipality has reduced pollutants to the MEP can only be made by the State or Regional Water Boards.

Municipal Separate Storm Sewer System (MS4). A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is: (1) Owned or operated by a state, city, town, village, or other public entity that discharges to waters of the U.S.; (2) Designed or used to collect or convey storm water; (3) Not a combined sewer; and (4) Not part of a Publicly Owned Treatment Works.

Natural Ocean Water Quality. The water quality (based on selected physical, chemical and biological characteristics) that is required to sustain marine ecosystems, and which is without apparent human influence, i.e., an absence of significant amounts of: (a) man-made constituents (e.g., DDT); (b) other chemical (e.g., trace metals), physical (temperature/thermal pollution, sediment burial), and biological (e.g., bacteria) constituents at concentrations that have been elevated due to man's activities above those resulting from the naturally occurring processes that affect the area in question; and (c) non-indigenous biota (e.g., invasive algal bloom species) that have been introduced either deliberately or accidentally by man. Discharges "shall not alter natural ocean water quality" as determined by a comparison to the range of constituent concentrations in reference areas agreed upon via the regional

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monitoring program(s). If monitoring information indicates that natural ocean water quality is not maintained, but there is sufficient evidence that a discharge is not contributing to the alteration of natural water quality, then the Regional Water Board may make that determination. In this case, sufficient information must include runoff sample data that has equal or lower concentrations for the range of constituents at the applicable reference area(s).

New Development. Any newly constructed facility, street, road, highway or contiguous road surface installed as part of a street, road or highway project within the Department's right-of-way.

Non-Department Activities. Third party activities that are primarily controlled by encroachment permits, leases, and rental agreements. They include both construction activities and non-construction activities.

Non-Department Projects. Same as Non-Department Activities.

Non-storm Water. Discharges that are not induced by precipitation events and are not composed entirely of storm water. These discharges include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, concrete washout water, paint wash water, irrigation water, pipe testing water, lawn watering overspray, hydrant flushing, and fire fighting activities.

Nonpoint Source. Pollution that is not released through a discrete conveyance but rather originates from multiple sources over a relatively large area. Nonpoint sources can be divided into source activities related to either land or water use, including failing septic tanks, animal agriculture, forest practices, and urban and rural runoff.

Nuisance. Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Perennial Stream. Any stream shown as a solid blue line on the latest version of the U.S. Geological Survey (USGS) 7.5 minute series quadrangle map (sometimes referred to as a blue-line stream). Where 7.5 minute series maps have not been prepared by USGS, 15 minute series maps are used.

Pesticide. Substances intended to repel, kill, or control any species designated a "pest" including weeds, insects, rodents, fungi, bacteria, or other organisms. The family of pesticides includes [herbicides](#), [insecticides](#), [rodenticides](#), [fungicides](#), algicides, and [bactericides](#).

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Algicide. A pesticide that controls algae in swimming pools and water tanks.

Herbicide. A pesticide designed to control or kill plants, weeds, or grasses.

Insecticide. A pesticide compound specifically used to kill or prevent the growth of insects.

Rodenticide. A pesticide or other agent used to kill rats and other rodents or to prevent them from damaging food, crops, or forage.

Fungicide. A pesticide used to control or destroy fungi on food or grain crops.

Bactericide. A pesticide used to control or destroy bacteria, typically in the home, schools, or on hospital equipment.

pH. A measure of the degree of acidity or alkalinity in a water sample. The pH of natural waters tends to range between six (6) and nine (9), with neutral being seven (7). Extremes of pH can have deleterious effects on aquatic systems.

Point source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

Pollutant. Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollutants of Concern. Pollutants in a discharge with potential to cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters, or the properties of the pollutant. Pollutants that impair waterbodies listed under CWA section 303(d) are also Pollutants of Concern. Pollutants in the Department's discharge that may be Pollutants of Concern include, but are not limited to, total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (e.g., decaying vegetation and animal waste), and litter and trash.

Pollution. An alteration of the quality of the waters of the state by waste to a degree which unreasonably affects the beneficial uses of the water or facilities which serve those beneficial uses (Porter-Cologne Water Quality Control Act, section 13050(l)(1)).

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Redevelopment. The creation, addition, and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that removes impervious materials and exposes the underlying soil or pervious subgrade. Redevelopment does not include trenching and resurfacing associated with utility work; pavement grinding and resurfacing of existing roadways; construction of new sidewalks, pedestrian ramps, or bike lanes on existing roadways; or routine replacement of damaged pavement such as pothole repair or replacement of short, non-contiguous sections of roadway. Redevelopment does include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed during construction. Replaced impervious surfaces of this type shall be considered "new impervious surfaces" for purposes of determining the applicability of post-construction treatment controls as provided in provision E.2.d.2).

Roadway. Any road within the Department's right-of-way.

Routine Maintenance. Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility. Routine maintenance does not include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed.

Right-of-Way (ROW). Real property that is either owned or controlled by the Department or subject to a property right of the Department. Right-of-way that is in current use is referred to as operating ROW.

Sediment. Soil, sand, and minerals washed from land into water, usually after rain.

Slope Lateral Drainage. Horizontal drains placed in hillside embankments to intercept groundwater and direct it away from slopes to provide stability.

Spill. The sudden release of a potential pollutant to the environment.

Storm Water. Storm water runoff, snowmelt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26 (b)(13).

Storm Water Runoff. The portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels or pipes.

Standard Urban Storm Water Mitigation Plan (SUSMP). Plans designating the Best Management Practices that must be used in specified categories of development and redevelopment. The State Water Board adopted a precedential decision (Order WQ 2000-11) upholding a SUSMP requirement imposed under a Phase I MS4 permit and requiring SUSMPs in all MS4 permits.

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Storm Water Management Plan (SWMP). Description of the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drain systems and receiving waters.

Surface Water Ambient Monitoring Program (SWAMP). The State Water Board's monitoring, assessment, and reporting program for ambient surface water.

Threshold Drainage Area (TDA). The area draining to a location 20 channel widths downstream (representative reach) of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits.

Threatened Non-compliance. Any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Total Dissolved Solids (TDS). A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution and used to evaluate the quality of freshwater systems.

Total Kjeldahl Nitrogen (TKN). The sum of organic nitrogen and total ammonia nitrogen.

Total Maximum Daily Load (TMDL). The sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs (40 CFR 130.2(i)).

Total Petroleum Hydrocarbon (TPH). A measure of the concentration or mass of petroleum hydrocarbons in a given amount of soil or water. TPH is a mixture of different compounds from different sources.

Total Suspended Solids (TSS). Suspended particulate matter: Fine material or soil particles that remain suspended by the water column. They create turbidity and, when deposited, can smother fish eggs or alevins.

Toxicity. The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Trash. All improperly discarded waste material associated with human habitation, of human origin; or from any producing, manufacturing, or processing operation including, but not limited to, product packaging or containers constructed of steel,

ATTACHMENT VIII

aluminum, glass, paper, plastic, and other natural and synthetic materials that are thrown or deposited in waters or where it could be transported, as floating, suspended, and/or settleable materials, to waters of the State, including watersheds. (SWRCB Trash Policy).

Turbidity. Murkiness or cloudiness of water, indicating the presence of suspended solids.

United States Environmental Protection Agency (U.S. EPA). U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by the United States Congress. U.S. EPA is responsible for researching and setting national standards for the Storm Water Program.

Waste. Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

Wasteload Allocation (WLA). The portion of a receiving water's total maximum daily load that is allocated to one of its existing or future point sources of pollution. Waste load allocations constitute a type of water quality-based effluent limitation.

Water Quality Objectives (WQO). The limits or levels of water quality elements or biological characteristics established to reasonably protect the beneficial uses of water or to prevent nuisance within a specific area. Water quality objectives may be numeric or narrative.

Water Quality Standards (WQS). State-adopted and U.S. EPA-approved water quality standards for surface water bodies. The standards prescribe the beneficial uses (swimmable, fishable, drinkable, etc.) of the water body and establish the WQOs that must be met to protect designated uses.

Waters of the State. Any surface water or groundwater, including saline waters, within boundaries of the state, as defined in CWC 13050(e). This Order contains requirements to protect the beneficial uses of waters of the State.

Waters of the United States. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States [as defined in 40 CFR 230.3(s)] include all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use of which would affect or could affect interstate or foreign commerce. The definition also applies to tributaries of the aforementioned waters. See 40 CFR 122.2 for the complete definition, which is hereby incorporated by reference.

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Watershed. A drainage area or basin in which all water drains or flows toward a central collector such as a stream, river, or lake at a lower elevation.

Wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Workplans. See District Workplans.

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Attachment IX: Reporting Requirements

Reporting Requirement	Permit Section	Due Date	Frequency
Annual Report	E.3.	October 1, 2013	Annually
Draft ASBS Compliance Plan	E.5.c.2)	September 20, 2013	18 months after the General Exception effective date
Final ASBS Compliance Plan	E.5.c.2)	September 20, 2015	30 months after the General Exception effective date
Budget Analysis	E.2.b.3)c)	October 1, 2017	Year 4 of Permit Cycle
Certification of the Adequacy of Legal Authority	E.2.b.2)b)	October 1, 2013	Annually as part of the Annual Report
District Workplans	E.3.b.	October 1, 2013	Annually as part of the Annual Report
Facility Pollution Prevention Plan (FPPP)	E.2.h.2)	October 1, 2013	Annually as part of the Annual Report and as required by the Regional Water Board
Fiscal Analysis	E.2.b.3)b)	October 1, 2013	Annually as part of the Annual Report
IC/ID & Illegal Dumping Response Plan	E.2.h.4)b)ii)	December 31, 2013	Update as needed annually
Incident Report Form	E.2.b.6)and Attachment I	October 1, 2013	As Needed
Landslide Management Plan	E.2.h.3)d)	October 1, 2013	Year 1 Annual Report
Monitoring Results Report (MRR)	E.2.c.5)	October 1, 2013	Annually
Monitoring Site Prioritization (Tier 2)	E.2.c.1)	March 1, 2014	Within 8 months of the effective date
Municipal Coordination Plan	E.2.b.1)b)	October 1, 2013	To be Included in the SWMP and Progress Report as part of the Annual Report
Overall Program Effectiveness Evaluation	E.2.m.3)	October 1, 2013	Annually as part of the Annual Report
Public Education Program Progress Report	E.2.l.2)	October 1, 2013	Annually as part of the Annual Report
Self-Audit - (includes construction activities)	E.2.m.2)	October 1, 2013	Annually as part of the Annual Report
Stormwater Monitoring & BMP Development Status Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
Stormwater Treatment BMP Technology Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
TMDL Status Review Report	E.4.b.	October 1, 2015	Annually as part of the Annual Report
Updated Stormwater Management Plan (SWMP)	E.1.a.	October 1, 2013	Revisions as part of the Annual Report
Waste Management Plan	E.2.h.3)c)iii)	July 1, 2014	Within 1 year of the Effective Date

Note: This table is a partial list of reporting requirements. The Department shall submit all required reports as provided in the Order. Any discrepancy between the text of the NPDES Permit and this table will be resolved in favor of the Permit.

Effective Date of this Order is July 1, 2013

Effective Date of the ASBS Special Protections (General Exception) is March 20, 2012

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11

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	April 1, 2014
This Order shall become effective on:	July 1, 2015
This Order shall expire on:	June 30, 2020

IT IS HEREBY ORDERED that as of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

CERTIFICATION


I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order, including its fact sheet, attachments, and appendices is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on April 1, 2014.

AYE: Chair Felicia Marcus
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore

NAY: None

ABSENT: Board Member Dorene D'Adamo

ABSTAIN: None



Jeanine Townsend
Clerk to the Board

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I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The Federal Clean Water Act (Clean Water Act) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (33 U.S.C. §§ 1311, 1342 (also referred to as Clean Water Act §§ 301, 402).) The United States Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the Clean Water Act's mandate to control pollutants in storm water discharges. (40 C.F.R. § 122, et seq.) The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges (NSWDs). The NPDES permit must also include additional requirements necessary to implement applicable water quality objectives or water quality standards (water quality standards, collectively).
2. On November 16, 1990, U.S. EPA promulgated Phase I storm water regulations in compliance with section 402(p) of the Clean Water Act. (55 Fed. Reg. 47990, codified at 40 C.F.R. § 122.26.) These regulations require operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges), to obtain an NPDES permit. Section 402(p)(3)(A) of the Clean Water Act also requires that permits for discharges associated with industrial activity include requirements necessary to meet water quality standards.
3. Phase II storm water regulations¹ require permitting for storm water discharges from facilities owned and operated by a municipality with a population of less than 100,000. The previous exemption from the Phase I permitting requirements under section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 was eliminated.
4. This Order (General Permit) is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act and shall take effect on July 1, 2015, provided that the Regional Administrator of U.S. EPA has no objection. If the U.S. EPA Regional Administrator has an objection, this General Permit will not become effective until the objection is withdrawn.
5. This action to adopt an NPDES General Permit is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) in accordance with section 13389 of the Water Code. (See *County of*

¹ U.S. EPA. Final NPDES Phase II Rule. <<http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm>>. [as of February 4, 2014]

Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985.)

6. State Water Board Order 97-03-DWQ is rescinded as of the effective date of this General Permit (July 1, 2015) except for Order 97-03-DWQ's requirement that annual reports be submitted by July 1, 2015 and except for enforcement purposes.
7. Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.
8. This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.
9. Industrial activities covered under this General Permit are described in Attachment A.
10. The Fact Sheet for this Order is incorporated as findings of this General Permit.
11. Acronyms are defined in Attachment B and terms used in this General Permit are defined in Attachment C.
12. This General Permit regulates industrial storm water discharges and authorized NSWDS from specific categories of industrial facilities identified in Attachment A hereto, and industrial storm water discharges and authorized NSWDS from facilities designated by the Regional Water Boards to obtain coverage under this General Permit. This General Permit does not apply to industrial storm water discharges and NSWDS that are regulated by other individual or general NPDES permits
13. This General Permit does not preempt or supersede the authority of municipal agencies to prohibit, restrict, or control industrial storm water discharges and authorized NSWDS that may discharge to storm water conveyance systems or other watercourses within their jurisdictions as allowed by state and federal law.
14. All terms defined in the Clean Water Act, U.S. EPA regulations, and the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq.) will have the same definition in this General Permit unless otherwise stated.
15. Pursuant to 40 Code of Federal Regulations section 131.12 and State Water Board Resolution 68-16, which incorporates the requirements of 40 Code of Federal Regulations section 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses. Any degradation of water quality from existing high quality water to a level that achieves water quality objectives and

protects beneficial uses is appropriate to support economic development. This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges, and are therefore consistent with those provisions.

16. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable permits.
17. This General Permit requires that the Discharger certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) and No Exposure Certification (NEC) coverage via the State Water Board's Storm Water Multiple Application and Report Tracking System (SMARTS) website. (See Attachment D for an example of the information required to be submitted in the PRDs via SMARTS.) All other documents required by this General Permit to be electronically certified and submitted via SMARTS can be submitted by the Discharger or by a designated Duly Authorized Representative on behalf of the Discharger. Electronic reporting is required to reduce the state's reliance on paper, to improve efficiency, and to make such General Permit documents more easily accessible to the public and the Water Boards.
18. All information provided to the Water Boards shall comply with the Homeland Security Act and all other federal law that concerns security in the United States, as applicable.

B. Industrial Activities Not Covered Under this General Permit

19. Discharges of storm water from areas on tribal lands are not covered under this General Permit. Storm water discharges from industrial facilities on tribal lands are regulated by a separate NPDES permit issued by U.S. EPA.
20. Discharges of storm water regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board are not covered under this General Permit, including the State Water Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.
21. Storm water discharges to combined sewer systems are not covered under this General Permit. These discharges must be covered by an individual permit. (40 C.F.R. § 122.26(a)(7).)
22. Conveyances that discharge storm water runoff combined with municipal sewage are not covered under this General Permit.
23. Discharges of storm water identified in Clean Water Act section 402(l) (33 U.S.C. § 1342(l)) are not covered under this General Permit.
24. Facilities otherwise subject to this General Permit but for which a valid Notice of Non-Applicability (NONA) has been certified and submitted via SMARTS, by the Entity are not covered under this General Permit. Entities (See Section XX.C.1 of this General Permit) who are claiming "No Discharge"

through the NONA shall meet the eligibility requirements and provide a No Discharge Technical Report in accordance with Section XX.C.

25. This General Permit does not authorize discharges of dredged or fill material regulated by the US Army Corps of Engineers under section 404 of the Clean Water Act and does not constitute a water quality certification under section 401 of the Clean Water Act.

C. Discharge Prohibitions

26. Pursuant to section 13243 of the Water Code, the State Water Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, is prohibited.
27. With the exception of certain authorized NSWDs as defined in Section IV, this General Permit prohibits NSWDs. The State Water Board recognizes that certain NSWDs should be authorized because they are not generated by industrial activity, are not significant sources of pollutants when managed appropriately, and are generally unavoidable because they are related to safety or would occur regardless of industrial activity. Prohibited NSWDs may be authorized under other individual or general NPDES permits, or waste discharge requirements issued by the Water Boards.
28. Prohibited NSWDs are referred to as unauthorized NSWDs in this General Permit. Unauthorized NSWDs shall be either eliminated or permitted by a separate NPDES permit. Unauthorized NSWDs may contribute significant pollutant loads to receiving waters. Measures to control sources of unauthorized NSWDs such as spills, leakage, and dumping, must be addressed through the implementation of Best Management Practices (BMPs).
29. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the Water Boards.
30. Direct discharges of waste, including industrial storm water discharges, to Areas of Special Biological Significance (ASBS) are prohibited unless the Discharger has applied for and the State Water Board has granted an exception to the State Water Board's 2009 Water Quality Control Plan for Ocean Waters of California as amended by State Water Board Resolution 2012-0056 (California Ocean Plan)² allowing the discharge.

² State Water Resources Control Board. Ocean Standards Web Page.

<http://www.waterboards.ca.gov/water_issues/programs/ocean/>. [as of February 4, 2014].

State Water Resources Control Board. Water Quality Control Plan for Ocean Waters of California 2009.

<http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/2009_cop_adoptedeffective_usepa.pdf>. [as of February 4, 2014].

State Water Resources Control Board. Resolution 2012-0056.

<http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0056.pdf>. [as of February 4, 2014].

D. Effluent Limitations

31. Section 301(b) of the Clean Water Act and 40 Code of Federal Regulations section require NPDES permits to include technology-based requirements at a minimum, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards. Clean Water Act section 402(p)(3)(A) requires that discharges of storm water runoff from industrial facilities comply with Clean Water Act section 301.
32. This General Permit requires control of pollutant discharges using BAT and BCT to reduce and prevent discharges of pollutants, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards.
33. It is not feasible for the State Water Board to establish numeric technology based effluent limitations for discharges authorized by this General Permit at this time. The rationale for this determination is discussed in detail in the Fact Sheet of this General Permit. Therefore, this General Permit requires Dischargers to implement minimum BMPs and applicable advanced BMPs as defined in Section X.H (collectively, BMPs) to comply with the requirements of this General Permit. This approach is consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP).
34. 40 Code of Federal Regulations section 122.44(d) requires that NPDES permits include Water Quality Based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality standards for receiving waters.
35. Where numeric water quality criteria have not been established, 40 Code of Federal Regulations section 122.44(d)(1)(vi) provides that WQBELs may be established using U.S. EPA criteria guidance under section 304(a) of the Clean Water Act, a proposed state criteria or policy interpreting narrative criteria supplemented with other relevant information, and/or an indicator parameter.
36. This General Permit requires Dischargers to implement BMPs when necessary, in order to support attainment of water quality standards. The use of BMPs to control or abate the discharge of pollutants is authorized by 40 Code of Federal Regulations section 122.44(k)(3) because numeric effluent limitations are infeasible and implementation of BMPs is reasonably necessary to achieve effluent limitations and water quality standards, and to carry out the purposes and intent of the Clean Water Act. (40 C.F.R. § 122.44(k)(4).)

E. Receiving Water Limitations

37. This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges and authorized NSWDS not

cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics. If any Discharger's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures in order to attain compliance with the receiving water limitation. Compliance with water quality standards may, in some cases, require Dischargers to implement controls that are more protective than controls implemented solely to comply with the technology-based requirements in this General Permit.

F. Total Maximum Daily Loads (TMDLs)

38. TMDLs relate to the maximum amount of a pollutant that a water body can receive and still attain water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2(i).) Discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7. (40 C.F.R. § 122.44 (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. Many TMDLs contained in water quality control plans include implementation requirements in addition to waste load allocations. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include requirements, including waste load allocations, for Dischargers covered by this General Permit.

39. The State Water Board recognizes that it is appropriate to develop TMDL-specific permit requirements derived from each TMDL's waste load allocation and implementation requirements, in order to provide clarity to Dischargers regarding their responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to public noticing requirements and a corresponding public comment period. Due to the number and variety of Dischargers subject to a wide range of TMDLs, development of TMDL-specific permit requirements for each TMDL listed in Attachment E will severely delay the reissuance of this General Permit. Because most of the TMDLs were established by the Regional Water Boards, and because some of the waste load allocations and/or implementation requirements may be shared by multiple Dischargers, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level.

40. State and Regional Water Board staff will develop proposed TMDL-specific permit requirements (including monitoring and reporting requirements) for each of the TMDLs listed in Attachment E. After conducting a 30-day public comment period, the Regional Water Boards will submit to the State Water Board proposed TMDL-specific permit requirements for adoption by the State Water Board into this General Permit by July 1, 2016. The Regional Water Boards may also include proposed TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Consistent with the 2008 MSGP, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements, unless notified otherwise by a Regional Water Board.
41. The Regional Water Boards shall submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:
- a. Proposed TMDL-specific permit, monitoring and reporting requirements applicable to industrial storm water discharges and NSWDS authorized under this General Permit, including compliance schedules and deliverables consistent with the TMDLs. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards;
 - b. An explanation of how the proposed TMDL-specific permit requirements, compliance schedules, and deliverables are consistent with the assumptions and requirements of any applicable waste load allocation and implement each TMDL; and,
 - c. Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations.
42. Upon receipt of the information described in Finding 40, and no later than July 1, 2016, the State Water Board will issue a public notice and conduct a public comment period for the reopening of this General Permit to amend Attachment E, the Fact Sheet, and other provisions as necessary for incorporation of TMDL-specific permit requirements into this General Permit. Attachment E may also be subsequently reopened during the term of this General Permit to incorporate additional TMDL-specific permit requirements.

G. Discharges Subject to the California Ocean Plan

43. On October 16, 2012 the State Water Board amended the California Ocean Plan. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the

California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances. The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

44. This General Permit requires Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers that have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 (the effective date of this General Permit), or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.
45. The California Ocean Plan prohibits the direct discharge of waste to ASBS. ASBS are defined in California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."
46. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.
47. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 which contains exceptions to the California Ocean Plan for specific discharges of storm water and non-point sources. This resolution also contains the special protections that are to be implemented for those discharges to ASBS.
48. This General Permit requires Dischargers who have been granted an exception to the Ocean Plan authorizing the discharges to ASBS by the State Water Board to comply with the requirements contained in Section VIII.B of this General Permit.

H. Training

49. To improve compliance and maintain consistent implementation of this General Permit, Dischargers are required to designate a Qualified Industrial Storm Water Practitioner (QISP) for each facility the Discharger operates that has entered Level 1 status in the Exceedance Response Action (ERA) process as described in Section XII of this General Permit. A QISP may be assigned to more than one facility. In order to qualify as a QISP, a State

Water Board-sponsored or approved training course must be completed. A competency exam may be required by the State Water Board to demonstrate sufficient knowledge of the QISP course material.

50. A QISP must assist the Discharger in completing the Level 1 status and Level 2 status ERA requirements as specified in Section XII of this General Permit. A QISP is also responsible for assisting New Dischargers that will be discharging to an impaired water body with a 303(d) listed impairment, demonstrate eligibility for coverage through preparing the data and/or information required in Section VII.B.
51. A Compliance Group Leader, as defined in Section XIV of this General Order must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.
52. All engineering work subject to the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq.) and required by this General Permit shall be performed by a California licensed professional engineer.
53. California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG.

I. Storm Water Pollution Prevention Plan (SWPPP) Requirements

54. This General Permit requires the development of a site-specific SWPPP in accordance with Section X of this General Permit. The SWPPP must include the information needed to demonstrate compliance with the requirements of this General Permit. The SWPPP must be submitted electronically via SMARTS, and a copy be kept at the facility. SWPPP revisions shall be completed in accordance with Section X.B of this General Permit

J. Sampling, Visual Observations, Reporting and Record Keeping

55. This General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Under this General Permit, Dischargers are required to:
 - (a) conduct an Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation) to identify areas of the facility contributing pollutants to industrial storm water discharges, (b) evaluate whether measures to reduce or prevent industrial pollutant loads identified in the Discharger's SWPPP are adequate and properly implemented in accordance with the terms of this

General Permit, and (c) determine whether additional control measures are needed.

56. This General Permit contains monitoring requirements that are necessary to determine whether pollutants are being discharged, and whether response actions are necessary. Data and information resulting from the monitoring will assist in Dischargers' evaluations of BMP effectiveness and compliance with this General Permit. Visual observations are one form of monitoring. This General Permit requires Dischargers to perform a variety of visual observations designed to identify pollutants in industrial storm water discharges and their sources. To comply with this General Permit Dischargers shall: (1) electronically self-report any violations via SMARTS, (2) comply with the Level 1 status and Level 2 status ERA requirements, when applicable, and (3) adequately address and respond to any Regional Water Board comments on the Discharger's compliance reports.

57. Dischargers that meet the requirements of the No Exposure Certification (NEC) Conditional Exclusion set forth in Section XVII of this General Permit are exempt from the SWPPP requirements, sampling requirements, and visual observation requirements in this General Permit.

K. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

58. U.S. EPA regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) establish technology-based Effluent Limitation Guidelines and New Source Performance Standards (ELGs) for industrial storm water discharges from facilities in specific industrial categories. For these facilities, compliance with the BAT/BCT and ELG requirements constitutes compliance with technology-based requirements of this General Permit.

59. 40 Code of Federal Regulations section 122.44(i)(3) and (4) require storm water permits to require at least one Annual Evaluation and any monitoring requirements for applicable ELGs in Subchapter N. This General Permit requires Dischargers to comply with all applicable ELG requirements found in Subchapter N.

L. Sampling and Analysis Reduction

60. This General Permit reduces the number of qualifying sampling events required to be sampled each year when the Discharger demonstrates: (1) consistent compliance with this General Permit, (2) consistent effluent water quality sampling, and (3) analysis results that do not exceed numerical action levels.

M. Role of Numeric Action Levels (NALs) and Exceedance Response Actions (ERAs)

61. This General Permit incorporates a multiple objective performance measurement system that includes NALs, new comprehensive training requirements, Level 1 ERA Reports, Level 2 ERA Technical Reports, and Level 2 ERA Action Plans. Two objectives of the performance measurement system are to inform Dischargers, the public and the Water Boards on: (1) the overall pollutant control performance at any given facility, and (2) the overall performance of the industrial statewide storm water program. Additionally, the State Water Board expects that this information and assessment process will provide information necessary to determine the feasibility of numeric effluent limitations for industrial dischargers in the next reissuance of this General Permit, consistent with the State Water Board Storm Water Panel of Experts' June 2006 Recommendations.³
62. This General Permit contains annual and instantaneous maximum NALs. The annual NALs are established as the 2008 MSGP benchmark values, and are applicable for all parameters listed in Table 2. The instantaneous maximum NALs are calculated from a Water Board dataset, and are only applicable for Total Suspended Solids (TSS), Oil and Grease (O&G), and pH. An NAL exceedance is determined as follows:
- a. For annual NALs, an exceedance occurs when the average of all analytical results from all samples taken at a facility during a reporting year for a given parameter exceeds an annual NAL value listed in Table 2 of this General Permit; or,
 - b. For the instantaneous maximum NALs, an exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for Total Suspended Solids, and Oil and Grease), or are outside of the instantaneous maximum NAL range (for pH) listed in Table 2 of this General Permit. For the purposes of this General Permit, the reporting year is July 1 through June 30.
63. The NALs are not intended to serve as technology-based or water quality-based numeric effluent limitations. The NALs are not derived directly from either BAT/BCT requirements or receiving water objectives. NAL exceedances defined in this General Permit are not, in and of themselves, violations of this General Permit. A Discharger that does not fully comply with the Level 1 status and/or Level 2 status ERA requirements, when required by the terms of this General Permit, is in violation of this General Permit.
64. ERAs are designed to assist Dischargers in complying with this General Permit. Dischargers subject to ERAs must evaluate the effectiveness of their

³ State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006) <http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of February 4, 2014].

BMPs being implemented to ensure they are adequate to achieve compliance with this General Permit.

65. U.S. EPA regulations at Subchapter N establish ELGs for storm water discharges from facilities in 11 industrial categories. Dischargers subject to these ELGs are required to comply with the applicable requirements.
66. Exceedances of the NALs that are attributable solely to pollutants originating from non-industrial pollutant sources (such as run-on from adjacent facilities, non-industrial portions of the Discharger's property, or aerial deposition) are not a violation of this General Permit because the NALs are designed to provide feedback on industrial sources of pollutants. Dischargers may submit a Non-Industrial Source Pollutant Demonstration as part of their Level 2 ERA Technical Report to demonstrate that the presence of a pollutant causing an NAL exceedance is attributable solely to pollutants originating from non-industrial pollutant sources.
67. A Discharger who has designed, installed, and implemented BMPs to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit may submit an Industrial Activity BMPs Demonstration, as part of their Level 2 ERA Technical Report.
68. This General Permit establishes design storm standards for all treatment control BMPs. These design standards are directly based on the standards in State Water Board Order 2000-0011 regarding Standard Urban Storm Water Mitigation Plans (SUSMPs). These design standards are generally expected to be consistent with BAT/BCT, to be protective of water quality, and to be effective for most pollutants. The standards are intended to eliminate the need for most Dischargers to further treat/control industrial storm water discharges that are unlikely to contain pollutant loadings that exceed the NALs set forth in this General Permit.

N. Compliance Groups

69. Compliance Groups are groups of Dischargers (Compliance Group Participants) that share common types of pollutant sources and industrial activity characteristics. Compliance Groups provide an opportunity for the Compliance Group Participants to combine resources and develop consolidated Level 1 ERA Reports for Level 1 NAL exceedances and appropriate BMPs for implementation in response to Level 2 status ERA requirements that are representative of the entire Compliance Group. Compliance Groups also provide the Water Boards and the public with valuable information as to how industrial storm water discharges are affected by non-industrial background pollutant sources (including natural background) and geographic locations. When developing the next reissuance of this General Permit, the State Water Board expects to have a better understanding of the feasibility and benefits of sector-specific and watershed-based permitting alternatives, which may include technology- or water quality-based numeric effluent limitations. The effluent data, BMP performance data

and other information provided from Compliance Groups' consolidated reporting will further assist the State Water Board in addressing sector-specific and watershed-based permitting alternatives.

O. Conditional Exclusion – No Exposure Certification (NEC)

70. Pursuant to U.S. EPA Phase II regulations, all Dischargers subject to this General Permit may qualify for a conditional exclusion from specific requirements if they submit a NEC demonstrating that their facilities have no exposure of industrial activities and materials to storm water discharges.
71. This General Permit requires Dischargers who seek the NEC conditional exclusion to obtain coverage in accordance with Section XVII of this General Permit. Dischargers that meet the requirements of the NEC are exempt from the SWPPP, sampling requirements, and monitoring requirements in this General Permit.
72. Dischargers seeking NEC coverage are required to certify and submit the applicable permit registration documents. Annual inspections, re-certifications, and fees are required in subsequent years. Light industry facility Dischargers excluded from coverage under the previous permit (Order 97-03-DWQ) must obtain the appropriate coverage under this General Permit. Failure to comply with the Conditional Exclusion conditions listed in this General Permit may lead to enforcement for discharging without a permit pursuant to sections 13385 or 13399.25, et seq., of the Water Code. A Discharger with NEC coverage that anticipates a change (or changes) in circumstances that would lead to exposure should register for permit coverage prior to the anticipated changes.

P. Special Requirements for Facilities Handling Plastic Materials

73. Section 13367 of the Water Code requires facilities handling preproduction plastic to implement specific BMPs aimed at minimizing discharges of such materials. The definition of Plastic Materials for the purposes of this General Permit includes the following types of sources of Plastic Materials: virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other types of preproduction plastics with the potential to discharge or migrate off-site.

Q. Regional Water Board Authorities

74. Regional Water Boards are primarily responsible for enforcement of this General Permit. This General Permit recognizes that Regional Water Boards have the authority to protect the beneficial uses of receiving waters and prevent degradation of water quality in their region. As such, Regional Water Boards may modify monitoring requirements and review, comment, approve or disapprove certain Discharger submittals required under this General Permit.

IT IS HEREBY ORDERED that all Dischargers subject to this General Permit shall comply with the following conditions and requirements.

II. RECEIVING GENERAL PERMIT COVERAGE

A. Certification

1. For Storm Water Multiple Application and Report Tracking System (SMARTS) electronic account management and security reasons, as well as enforceability of this General Permit, the Discharger's Legally Responsible Person (LRP) of an industrial facility seeking coverage under this General Permit shall certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) or No Exposure Certification (NEC) coverage. All other documents shall be certified and submitted via SMARTS by the Discharger's (LRP) or by their Duly Authorized Representative in accordance with the Electronic Signature and Certification Requirements in Section XXI.K. All documents required by this General Permit that are certified and submitted via SMARTS shall be in accordance with Section XXI.K.
2. Hereinafter references to certifications and submittals by the Discharger refer to the Discharger's LRP and their Duly Authorized Representative.

B. Coverages

This General Permit includes requirements for two (2) types of permit coverage, NOI coverage and NEC coverage. State Water Board Order 97-03-DWQ (previous permit) remains in effect until July 1, 2015. When PRDs are certified and submitted and the annual fee is received, the State Water Board will assign the Discharger a Waste Discharger Identification (WDID) number.

1. General Permit Coverage (NOI Coverage)
 - a. Dischargers that discharge storm water associated with industrial activity to waters of the United States are required to meet all applicable requirements of this General Permit.
 - b. The Discharger shall register for coverage under this General Permit by certifying and submitting PRDs via SMARTS (<http://smarts.waterboards.ca.gov>), which consist of:
 - i. A completed NOI and signed certification statement;
 - ii. A copy of a current Site Map from the Storm Water Pollution Prevention Plan (SWPPP) in Section X.E;
 - iii. A SWPPP (see Section X); and,

- c. The Discharger shall pay the appropriate Annual Fee in accordance with California Code of Regulations, title 23, section 2200 et seq.⁴
2. General Permit Coverage (NEC Coverage)
 - a. Dischargers that certify their facility has no exposure of industrial activities or materials to storm water in accordance with Section XVII qualify for NEC coverage and are not required to comply with the SWPPP or monitoring requirements of this General Permit.
 - b. Dischargers who qualify for NEC coverage shall conduct one Annual Facility Comprehensive Compliance Evaluation (Annual Evaluation) as described in Section XV, pay an annual fee, and certify annually that their facilities continue to meet the NEC requirements.
 - c. The Discharger shall submit the following PRDs on or before October 1, 2015 for NEC coverage via SMARTS:
 - i. A completed NEC Form (Section XVII.F.1) and signed certification statement (Section XVII.H);
 - ii. A completed NEC Checklist (Section XVII.F.2); and
 - iii. A current Site Map consistent with requirements in Section X.E.;
 - d. The Discharger shall pay the appropriate annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.⁵
 3. General PRD Requirements
 - a. Site Maps

Dischargers registering for NOI or NEC coverage shall prepare a site map(s) as part of their PRDs in accordance with Section X.E. A separate copy of the site map(s) is required to be in the SWPPP. If there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.) a revision to the site map is required and shall be certified and submitted via SMARTS.
 - b. A Discharger shall submit a single set of PRDs for coverage under this General Permit for multiple industrial activities occurring at the same facility.
 - c. Any information provided to the Water Boards by the Discharger shall comply with the Homeland Security Act and other federal law that

⁴ Annual fees must be mailed or sent electronically using the State Water Boards' Electronic Funds Transfer (EFT) system in SMARTS.

⁵ See footnote 4.

addresses security in the United States; any information that does not comply should not be submitted in the PRDs. The Discharger must provide justification to the Regional Water Board regarding redacted information within any submittal.

- d. Dischargers may redact trade secrets from information that is submitted via SMARTS. Dischargers who certify and submit redacted information via SMARTS must include a general description of the redacted information and the basis for the redaction in the version that is submitted via SMARTS. Dischargers must submit complete and un-redacted versions of the information that are clearly labeled "CONFIDENTIAL" to the Regional Water Board within 30 days of the submittal of the redacted information. All information labeled "CONFIDENTIAL" will be maintained by the Water Boards in a separate, confidential file.
4. Schedule for Submitting PRDs - Existing Dischargers Under the Previous Permit.
 - a. Existing Dischargers⁶ with coverage under the previous permit shall continue coverage under the previous permit until July 1, 2015. All waste discharge requirements and conditions of the previous permit are in effect until July 1, 2015.
 - b. Existing Dischargers with coverage under the previous permit shall register for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015. Existing Dischargers previously listed in Category 10 (Light Industry) of the previous permit, and continue to have no exposure to industrial activities and materials, have until October 1, 2015 to register for NEC coverage.
 - c. Existing Dischargers with coverage under the previous permit, that do not register for NOI coverage by July 1, 2015, may have their permit coverage administratively terminated as soon as July 1, 2015.
 - d. Existing Dischargers with coverage under the previous permit that are eligible for NEC coverage but do not register for NEC coverage by October 1, 2015 may have their permit coverage administratively terminated as soon as October 1, 2015.
 - e. Existing Dischargers shall continue to comply with the SWPPP requirements in State Water Board Order 97-03-DWQ up to, but no later than, June 30, 2015.

⁶ Existing Dischargers are Dischargers with an active Notice of Intent (permit coverage) under the previous permit (97-03-DWQ) prior to the effective date of this General Permit.

- f. Existing Dischargers shall implement an updated SWPPP in accordance with Section X by July 1, 2015.
 - g. Existing Dischargers that submit a Notice of Termination (NOT) under the previous permit prior to July 1, 2015 and that receive NOT approval from the Regional Water Board are not subject to this General Permit unless they subsequently submitted new PRDs.
5. Schedule for Submitting PRDs - New Dischargers Obtaining Coverage On or After July 1, 2015
- New Dischargers registering for NOI coverage on or after July 1, 2015 shall certify and submit PRDs via SMARTS at least seven (7) days prior to commencement of industrial activities or on July 1, 2015, whichever comes later.
- a. New Dischargers registering for NEC coverage shall electronically certify and submit PRDs via SMARTS by October 1, 2015, or at least seven (7) days prior to commencement of industrial activities, whichever is later.

C. Termination and Changes to General Permit Coverage

1. Dischargers with NOI or NEC coverage shall request termination of coverage under this General Permit when either (a) operation of the facility has been transferred to another entity, (b) the facility has ceased operations, completed closure activities, and removed all industrial related pollutants, or (c) the facility's operations have changed and are no longer subject to the General Permit. Dischargers shall certify and submit a Notice of Termination via SMARTS. Until a valid NOT is received, the Discharger remains responsible for compliance with this General Permit and payment of accrued annual fees.
2. Whenever there is a change to the facility location, the Discharger shall certify and submit new PRDs via SMARTS. When ownership changes, the prior Discharger (seller) must inform the new Discharger (buyer) of the General Permit applications and regulatory coverage requirements. The new Discharger must certify and submit new PRDs via SMARTS to obtain coverage under this General Permit.
3. Dischargers with NOI coverage where the facility qualifies for NEC coverage in accordance with Section XVII of this General Permit, may register for NEC coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NOI coverage.
4. Dischargers with NEC coverage, where changes in the facility and/or facility operations occur, which result in NOI coverage instead of NEC coverage, shall register for NOI coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NEC coverage.

5. Dischargers shall provide additional information supporting an NOT, or revise their PRDs via SMARTS, upon request by the Regional Water Board.
6. Dischargers that are denied approval of a submitted NOT or registration for NEC coverage by the Regional Water Board, shall continue compliance with this General Permit under their existing NOI coverage.
7. New Dischargers (Dischargers with no previous NOI or NEC coverage) shall register for NOI coverage if the Regional Water Board denies NEC coverage.

D. Preparation Requirements

1. The following documents shall be certified and submitted by the Discharger via SMARTS:
 - a. Annual Reports (Section XVI) and SWPPPs (Section X);
 - b. NOTs;
 - c. Sampling Frequency Reduction Certification (Section XI.C.7);
 - d. Level 1 ERA Reports (Section XII.C) prepared by a QISP;
 - e. Level 2 ERA Technical Reports and Level 2 ERA Action Plans (Sections XII.D.1-2) prepared by a QISP; and,
 - f. SWPPPs for inactive mining operations as described in Section XIII, signed (wet signature and license number) by a California licensed professional engineer.
2. The following documents shall be signed (wet signature and license number) by a California licensed professional engineer:
 - a. Calculations for Dischargers subject to Subchapter N in accordance with Section XI.D;
 - b. Notice of Non-Applicability (NONA) Technical Reports described in Section XX.C for facilities that are engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website;
 - c. NONA Technical Reports described in Section XX.C for facilities located in basins or other physical locations that are not tributaries or hydrologically connected to waters of the United States; and,
 - d. SWPPPs for inactive mines described in Section XIII.

III. DISCHARGE PROHIBITIONS

- A. All discharges of storm water to waters of the United States are prohibited except as specifically authorized by this General Permit or another NPDES permit.
- B. Except for non-storm water discharges (NSWDs) authorized in Section IV, discharges of liquids or materials other than storm water, either directly or indirectly to waters of the United States, are prohibited unless authorized by another NPDES permit. Unauthorized NSWDs must be either eliminated or authorized by a separate NPDES permit.
- C. Industrial storm water discharges and authorized NSWDs that contain pollutants that cause or threaten to cause pollution, contamination, or nuisance as defined in section 13050 of the Water Code, are prohibited.
- D. Discharges that violate any discharge prohibitions contained in applicable Regional Water Board Water Quality Control Plans (Basin Plans), or statewide water quality control plans and policies are prohibited.
- E. Discharges to ASBS are prohibited in accordance with the California Ocean Plan, unless granted an exception by the State Water Board and in compliance with the Special Protections contained in Resolution 2012-0012.
- F. Industrial storm water discharges and NSWDs authorized by this General Permit that contain hazardous substances equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations sections 110.6, 117.21, or 302.6 are prohibited.

IV. AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

- A. The following NSWDs are authorized provided they meet the conditions of Section IV.B:
 - 1. Fire-hydrant and fire prevention or response system flushing;
 - 2. Potable water sources including potable water related to the operation, maintenance, or testing of potable water systems;
 - 3. Drinking fountain water and atmospheric condensate including refrigeration, air conditioning, and compressor condensate;
 - 4. Irrigation drainage and landscape watering provided all pesticides, herbicides and fertilizers have been applied in accordance with the manufacturer's label;
 - 5. Uncontaminated natural springs, groundwater, foundation drainage, footing drainage;

6. Seawater infiltration where the seawater is discharged back into the source:
and,
 7. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).
- B.** The NSWDs identified in Section IV.A are authorized by this General Permit if the following conditions are met:
1. The authorized NSWDs are not in violation of any Regional Water Board Water Quality Control Plans (Basin Plans) or other requirements, or statewide water quality control plans or policies requirement;
 2. The authorized NSWDs are not in violation of any municipal agency ordinance or requirements;
 3. BMPs are included in the SWPPP and implemented to:
 - a. Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;
 - b. Reduce, to the extent practicable, the flow or volume of authorized NSWDs;
 - c. Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards;
and,
 - d. Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
 4. The Discharger conducts monthly visual observations (Section XI.A.1) of NSWDs and sources to ensure adequate BMP implementation and effectiveness; and,
 5. The Discharger reports and describes all authorized NSWDs in the Annual Report.
- C.** Firefighting related discharges are not subject to this General Permit and are not subject to the conditions of Section IV.B. These discharges, however, may be subject to Regional Water Board enforcement actions under other sections of the Water Code. Firefighting related discharges that are contained and are later discharged may be subject to municipal agency ordinances and/or Regional Water Board requirements.

V. EFFLUENT LIMITATIONS

- A. Dischargers shall implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
- B. Industrial storm water discharges from facilities subject to storm water ELGs in Subchapter N shall not exceed those storm water ELGs. The ELGs for industrial storm water discharges subject to Subchapter N are in Attachment F of this General Permit.
- C. Dischargers located within a watershed for which a Total Maximum Daily Load (TMDL) has been approved by U.S. EPA, shall comply with any applicable TMDL-specific permit requirements that have been incorporated into this General Permit in accordance with Section VII.A. Attachment E contains a reference list of potential TMDLs that may apply to Dischargers subject to this General Permit.

VI. RECEIVING WATER LIMITATIONS

- A. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not cause or contribute to an exceedance of any applicable water quality standards in any affected receiving water.
- B. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not adversely affect human health or the environment.
- C. Dischargers shall ensure that industrial storm water discharges and authorized NSWDS do not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

VII. TOTAL MAXIMUM DAILY LOADS (TMDLs)

A. Implementation

1. The State Water Board shall reopen and amend this General Permit, including Attachment E, the Fact Sheet and other applicable Permit provisions as necessary, in order to incorporate TMDL-specific permit requirements, as described in Findings 38 through 42. Once this General Permit is amended, Dischargers shall comply with the incorporated TMDL-specific permit requirements in accordance with any specified compliance schedule(s). TMDL-specific compliance dates that exceed the term of this General Permit may be included for reference, and are enforceable in the event that this General Permit is administratively extended or reissued.
2. The State Water Board may, at its discretion, reopen this General Permit to add TMDL-specific permit requirements to Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

- B.** New Dischargers applying for NOI coverage under this General Permit that will be discharging to a water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that:
1. The Discharger has eliminated all exposure to storm water of the pollutant(s) for which the water body is impaired, has documented the procedures taken to prevent exposure onsite, and has retained such documentation with the SWPPP at the facility;
 2. The pollutant for which the water body is impaired is not present at the Discharger's facility, and the Discharger has retained documentation of this finding with the SWPPP at the facility; or,
 3. The discharge of any listed pollutant will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

VIII. DISCHARGES SUBJECT TO THE CALIFORNIA OCEAN PLAN

A. Discharges to Ocean Waters

1. Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan shall develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015, or seven (7) days prior to commencing of operations, whichever is later, are ineligible to obtain coverage under this General Permit.
2. Dischargers are ineligible for the methods and exceptions provided in Section XI.C of this General permit for any of the outfalls discharging to ocean waters subject to the model monitoring provisions of the California Ocean Plan.

B. Discharge Granted an Exceptions for Areas of Special Biological Significance (ASBS)

Dischargers who were granted an exception to the California Ocean Plan prohibition against direct discharges of waste to an ASBS pursuant to Resolution 2012-0012⁷ amended by Resolution 2012-0031⁸ shall comply with the conditions and requirements set forth in Attachment G of this General Permit. Any Discharger that applies for and is granted an exception to the California Ocean Plan prohibition after July 1, 2013 shall comply with the conditions and requirements set forth in the granted exception.

IX. TRAINING QUALIFICATIONS

A. General

1. A Qualified Industrial Storm Water Practitioner (QISP) is a person (either the Discharger or a person designated by the Discharger) who has completed a State Water Board-sponsored or approved QISP training course⁹, and has registered as a QISP via SMARTS. Upon completed registration the State Water Board will issue a QISP identification number.
2. The Executive Director of the State Water Board or an Executive Officer of a Regional Water Board may rescind any QISP's registration if it is found that the QISP has repeatedly demonstrated an inadequate level of performance in completing the QISP requirements in this General Permit. An individual whose QISP registration has been rescinded may request that the State Water Board review the rescission. Any request for review must be received by the State Water Board no later than 30 days of the date that the individual received written notice of the rescission.
3. Dischargers with Level 1 status shall:
 - a. Designate a person to be the facility's QISP and ensure that this person has attended and satisfactorily completed the State Water Board-sponsored or approved QISP training course.
 - b. Ensure that the facility's designated QISP provides sufficient training to the appropriate team members assigned to perform activities required by this General Permit.

⁷ State Water Resources Control Board. Resolution 2012-0012. <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf>. [as of February 4, 2014].

⁸ State Water Resources Control Board. Resolution 2012-0031. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0031.pdf>. [as of February 4, 2014].

⁹ A specialized self-guided State Water Board-sponsored registration and training program will be available as an option for CPBELSG licensed professional civil, mechanical, industrial, and chemical engineers and professional geologists by the effective date of this General Permit.

X. Storm Water Pollution Prevention Plan (SWPPP)**A. SWPPP Elements**

Dischargers shall develop and implement a site-specific SWPPP for each industrial facility covered by this General Permit that shall contain the following elements, as described further in this Section¹⁰:

1. Facility Name and Contact Information;
2. Site Map;
3. List of Industrial Materials;
4. Description of Potential Pollution Sources;
5. Assessment of Potential Pollutant Sources;
6. Minimum BMPs;
7. Advanced BMPs, if applicable;
8. Monitoring Implementation Plan;
9. Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation); and,
10. Date that SWPPP was Initially Prepared and the Date of Each SWPPP Amendment, if Applicable.

B. SWPPP Implementation and Revisions

All Dischargers are required to implement their SWPPP by July 1, 2015 or upon commencement of industrial activity. The Discharger shall:

1. Revise their on-site SWPPP whenever necessary;
2. Certify and submit via SMARTS their SWPPP within 30 days whenever the SWPPP contains significant revision(s); and,
3. With the exception of significant revisions, the Discharger is not required to certify and submit via SMARTS their SWPPP revisions more than once every three (3) months in the reporting year.

¹⁰ Appendix 1 (SWPPP Checklist) of this General Permit is provided to assist the Discharger in including information required in the SWPPP. This checklist is not required to be used.

C. SWPPP Performance Standards

1. The Discharger shall ensure a SWPPP is prepared to:
 - a. Identify and evaluate all sources of pollutants that may affect the quality of industrial storm water discharges and authorized NSWDS;
 - b. Identify and describe the minimum BMPs (Section X.H.1) and any advanced BMPs (Section X.H.2) implemented to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDS. BMPs shall be selected to achieve compliance with this General Permit; and,
 - c. Identify and describe conditions or circumstances which may require future revisions to be made to the SWPPP.
2. The Discharger shall prepare a SWPPP in accordance with all applicable SWPPP requirements of this Section. A copy of the SWPPP shall be maintained at the facility.

D. Planning and Organization

1. Pollution Prevention Team

Each facility must have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in this General Permit. The Discharger shall include in the SWPPP detailed information about its Pollution Prevention Team including:

- a. The positions within the facility organization (collectively, team members) who assist in implementing the SWPPP and conducting all monitoring requirements in this General Permit;
- b. The responsibilities, duties, and activities of each of the team members; and,
- c. The procedures to identify alternate team members to implement the SWPPP and conduct required monitoring when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, or other absences).

2. Other Requirements and Existing Facility Plans

- a. The Discharger shall ensure its SWPPP is developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, and federal requirements that pertain to the requirements in this General Permit.
- b. The Discharger may include in their SWPPP the specific elements of existing plans, procedures, or regulatory compliance documents that

contain storm water-related BMPs or otherwise relate to the requirements of this General Permit.

- c. The Discharger shall properly reference the original sources for any elements of existing plans, procedures, or regulatory compliance documents included as part of their SWPPP and shall maintain a copy of the documents at the facility as part of the SWPPP.
- d. The Discharger shall document in their SWPPP the facility's scheduled operating hours as defined in Attachment C. Scheduled facility operating hours that would be considered irregular (temporary, intermittent, seasonal, weather dependent, etc.) shall also be documented in the SWPPP.

E. Site Map

1. The Discharger shall prepare a site map that includes notes, legends, a north arrow, and other data as appropriate to ensure the map is clear, legible and understandable.
2. The Discharger may provide the required information on multiple site maps.
3. The Discharger shall include the following information on the site map:
 - a. The facility boundary, storm water drainage areas within the facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area, on-facility surface water bodies, areas of soil erosion, and location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDS;
 - b. Locations of storm water collection and conveyance systems, associated discharge locations, and direction of flow. Include any sample locations if different than the identified discharge locations;
 - c. Locations and descriptions of structural control measures¹¹ that affect industrial storm water discharges, authorized NSWDS, and/or run-on;
 - d. Identification of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

¹¹ Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

- e. Locations where materials are directly exposed to precipitation and the locations where identified significant spills or leaks (Section X.G.1.d) have occurred; and
- f. Areas of industrial activity subject to this General Permit. Identify all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

F. List of Industrial Materials

The Discharger shall ensure the SWPPP includes a list of industrial materials handled at the facility, and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequency.

G. Potential Pollutant Sources

1. Description of Potential Pollutant Sources

a. Industrial Processes

The Discharger shall ensure the SWPPP describes each industrial process including: manufacturing, cleaning, maintenance, recycling, disposal, and any other activities related to the process. The type, characteristics, and approximate quantity of industrial materials used in or resulting from the process shall be included. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

b. Material Handling and Storage Areas

The Discharger shall ensure the SWPPP describes each material handling and storage area, including: the type, characteristics, and quantity of industrial materials handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and the corresponding containment capacity.

c. Dust and Particulate Generating Activities

The Discharger shall ensure the SWPPP describes all industrial activities that generate a significant amount of dust or particulate that may be deposited within the facility boundaries. The SWPPP shall describe such industrial activities, including the discharge locations, the source type, and the characteristics of the dust or particulate pollutant.

d. Significant Spills and Leaks

The Discharger shall:

- i. Evaluate the facility for areas where spills and leaks can likely occur;
- ii. Ensure the SWPPP includes:
 - a) A list of any industrial materials that have spilled or leaked in significant quantities and have discharged from the facility's storm water conveyance system within the previous five-year period;
 - b) A list of any toxic chemicals identified in 40 Code of Federal Regulations section 302 that have been discharged from the facilities' storm water conveyance system as reported on U.S. EPA Form R, as well as oil and hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) that have discharged from the facility's storm water conveyance system within the previous five-year period;
 - c) A list of any industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's storm water conveyance system within the previous five-year period; and,
- iii. Ensure that for each discharge or potential discharge listed above the SWPPP includes the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged from the facility's storm water conveyance system; the cleanup or remedial actions that have occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure spills or leaks of the material do not reoccur.

e. NSWDS

The Discharger shall:

- i. Ensure the SWPPP includes an evaluation of the facility that identifies all NSWDS, sources, and drainage areas;
- ii. Ensure the SWPPP includes an evaluation of all drains (inlets and outlets) that identifies connections to the storm water conveyance system;
- iii. Ensure the SWPPP includes a description of how all unauthorized NSWDS have been eliminated; and,

- iv. Ensure all NSWDs are described in the SWPPP. This description shall include the source, quantity, frequency, and characteristics of the NSWDs, associated drainage area, and whether it is an authorized or unauthorized NSWD in accordance with Section IV.
- f. Erodible Surfaces

The Discharger shall ensure the SWPPP includes a description of the facility locations where soil erosion may be caused by industrial activity, contact with storm water, authorized and unauthorized NSWDs, or run-on from areas surrounding the facility.

2. Assessment of Potential Pollutant Sources

- a. The Discharger shall ensure that the SWPPP includes a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include:
 - i. The areas of the facility with likely sources of pollutants in industrial storm water discharges and authorized NSWDs;
 - ii. The pollutants likely to be present in industrial storm water discharges and authorized NSWDs;
 - iii. The approximate quantity, physical characteristics (e.g., liquid, powder, solid, etc.), and locations of each industrial material handled, produced, stored, recycled, or disposed;
 - iv. The degree to which the pollutants associated with those materials may be exposed to, and mobilized by contact with, storm water;
 - v. The direct and indirect pathways by which pollutants may be exposed to storm water or authorized NSWDs;
 - vi. All sampling, visual observation, and inspection records;
 - vii. The effectiveness of existing BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs;
 - viii. The estimated effectiveness of implementing, to the extent feasible, minimum BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs; and,
 - ix. The identification of the industrial pollutants related to the receiving waters with 303(d) listed impairments identified in Appendix 3 or approved TMDLs that may be causing or contributing to an exceedance of a water quality standard in the receiving waters.
- b. Based upon the assessment above, Dischargers shall identify in the SWPPP any areas of the facility where the minimum BMPs described in

subsection H.1 below will not adequately reduce or prevent pollutants in storm water discharges in compliance with Section V.A. Dischargers shall identify any advanced BMPs, as described in subsection H.2 below, for those areas.

- c. Based upon the assessment above, Dischargers shall identify any drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.
- d. Based upon the assessment above, Dischargers shall identify any additional parameters, beyond the required parameters in Section XI.B.6 that indicate the presence of pollutants in industrial storm water discharges.

H. Best Management Practices (BMPs)

1. Minimum BMPs

The Discharger shall, to the extent feasible, implement and maintain all of the following minimum BMPs to reduce or prevent pollutants in industrial storm water discharges.¹²

a. Good Housekeeping

The Discharger shall:

- i. Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly;
- ii. Minimize or prevent material tracking;
- iii. Minimize dust generated from industrial materials or activities;
- iv. Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible;
- v. Cover all stored industrial materials that can be readily mobilized by contact with storm water;

¹² For the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” requires Dischargers to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

- vi. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;
 - vii. Prevent disposal of any rinse/wash waters or industrial materials into the storm water conveyance system;
 - viii. Minimize storm water discharges from non-industrial areas (e.g., storm water flows from employee parking area) that contact industrial areas of the facility; and,
 - ix. Minimize authorized NSWDS from non-industrial areas (e.g., potable water, fire hydrant testing, etc.) that contact industrial areas of the facility.
- b. Preventive Maintenance
- The Discharger shall:
- i. Identify all equipment and systems used outdoors that may spill or leak pollutants;
 - ii. Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks;
 - iii. Establish an appropriate schedule for maintenance of identified equipment and systems; and,
 - iv. Establish procedures for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills or leaks.
- c. Spill and Leak Prevention and Response
- The Discharger shall:
- i. Establish procedures and/or controls to minimize spills and leaks;
 - ii. Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly;
 - iii. Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and,
 - iv. Identify and train appropriate spill and leak response personnel.
- d. Material Handling and Waste Management

The Discharger shall:

- i. Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;
- ii. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;
- iii. Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use;
- iv. Divert run-on and storm water generated from within the facility away from all stockpiled materials;
- v. Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures (Section X.H.1.c); and,
- vi. Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.

e. Erosion and Sediment Controls

For each erodible surface facility location identified in the SWPPP (Section X.G.1.f), the Discharger shall:

- i. Implement effective wind erosion controls;
- ii. Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event;
- iii. Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site;
- iv. Divert run-on and storm water generated from within the facility away from all erodible materials; and,
- v. If sediment basins are implemented, ensure compliance with the design storm standards in Section X.H.6.

f. Employee Training Program

The Discharger shall:

- i. Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations,

and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP;

- ii. Prepare or acquire appropriate training manuals or training materials;
 - iii. Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;
 - iv. Provide a training schedule; and,
 - v. Maintain documentation of all completed training classes and the personnel that received training in the SWPPP.
- g. Quality Assurance and Record Keeping

The Discharger shall:

- i. Develop and implement management procedures to ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan;
- ii. Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP; and
- iii. Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years (Section XXI.J.4).

2. Advanced BMPs

- a. In addition to the minimum BMPs described in Section X.H.1, the Discharger shall, to the extent feasible, implement and maintain any advanced BMPs identified in Section X.G.2.b, necessary to reduce or prevent discharges of pollutants in its storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.
- b. Advanced BMPs may include one or more of the following BMPs:

- i. Exposure Minimization BMPs

These include storm resistant shelters (either permanent or temporary) that prevent the contact of storm water with the identified industrial materials or area(s) of industrial activity.

- ii. Storm Water Containment and Discharge Reduction BMPs

These include BMPs that divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff. Dischargers are

encouraged to utilize BMPs that infiltrate or reuse storm water where feasible.

iii. Treatment Control BMPs

This is the implementation of one or more mechanical, chemical, biologic, or any other treatment technology that will meet the treatment design standard.

iv. Other Advanced BMPs

Any additional BMPs not described in subsections b.i through iii above that are necessary to meet the effluent limitations of this General Permit.

3. Temporary Suspension of Industrial Activities

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

- a. Perform monthly visual observations (Section XI.A.1.a.); or,
- b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

- a. SWPPP revisions specifically addressing the facility stabilization BMPs;
- b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities;
- c. The date the facility is fully stabilized for temporary suspension of industrial activities; and,
- d. The projected date that industrial activities will resume at the facility.

Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit.

The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

4. BMP Descriptions

- a. The Discharger shall ensure that the SWPPP identifies each BMP being implemented at the facility, including:
 - i. The pollutant(s) that the BMP is designed to reduce or prevent in industrial storm water discharges;
 - ii. The frequency, time(s) of day, or conditions when the BMP is scheduled for implementation;
 - iii. The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;
 - iv. The individual and/or position responsible for implementing the BMP;
 - v. The procedures, including maintenance procedures, and/or instructions to implement the BMP effectively;
 - vi. The equipment and tools necessary to implement the BMP effectively; and,
 - vii. The BMPs that may require more frequent visual observations beyond the monthly visual observations as described in Section XI.A.1.
- b. The Discharger shall ensure that the SWPPP identifies and justifies each minimum BMP or applicable advanced BMP not being implemented at the facility because they do not reflect best industry practice considering technological availability and economic practicability and achievability.
- c. The Discharger shall identify any BMPs described in subsection a above that are implemented in lieu of any of the minimum or applicable advanced BMPs.

5. BMP Summary Table

The Discharger shall prepare a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

6. Design Storm Standards for Treatment Control BMPs

All new treatment control BMPs employed by the Discharger to comply with Section X.H.2 Advanced BMPs and new sediment basins installed after the effective date of this order shall be designed to comply with design storm standards in this Section, except as provided in an Industrial Activity BMP Demonstration (Section XII.D.2.a). A Factor of Safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

- a. Volume-based BMPs: The Discharger, at a minimum, shall calculate¹³ the volume to be treated using one of the following methods:
 - i. The volume of runoff produced from an 85th percentile 24-hour storm event, as determined from local, historical rainfall records;
 - ii. The volume of runoff produced by the 85th percentile 24-hour storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's Manual of Practice;¹⁴ or,
 - iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of California Stormwater Best Management Practices Handbook¹⁵, using local, historical rainfall records.
- b. Flow-based BMPs: The Discharger shall calculate the flow needed to be treated using one of the following methods:
 - i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;
 - ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,
 - iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

¹³ All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

¹⁴ Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, cited in chapter 5 (1998 Edition) and Cited in Chapter 3 (2012 Edition) .

¹⁵ California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. < <http://www.casqa.org/> >. [as of July 3, 2013].

I. MONITORING IMPLEMENTATION PLAN

The Discharger shall prepare a Monitoring Implementation Plan in accordance with the requirements of this General Permit. The Monitoring Implementation Plan shall be included in the SWPPP and shall include the following items:

1. An identification of team members assigned to conduct the monitoring requirements;
2. A description of the following in accordance with Attachment H:
 - a. Discharge locations;
 - b. Visual observation procedures; and,
 - c. Visual observation response procedures related to monthly visual observations and sampling event visual observations.
3. Justifications for any of the following that are applicable to the facility:
 - a. Alternative discharge locations in accordance with Section XI.C.3;
 - b. Representative Sampling Reduction in accordance with Section XI.C.4; or,
 - c. Qualified Combined Samples in accordance with Section XI.C.5.
4. Procedures for field instrument calibration instructions, including calibration intervals specified by the manufacturer; and,
5. An example Chain of Custody form used when handling and shipping water quality samples to the lab.

XI. MONITORING

A. Visual Observations

1. Monthly Visual Observations
 - a. At least once per calendar month, the Discharger shall visually observe each drainage area for the following:
 - i. The presence or indications of prior, current, or potential unauthorized NSWDS and their sources;
 - ii. Authorized NSWDS, sources, and associated BMPs to ensure compliance with Section IV.B.3; and,

- iii. Outdoor industrial equipment and storage areas, outdoor industrial activities areas, BMPs, and all other potential source of industrial pollutants.
- b. The monthly visual observations shall be conducted during daylight hours of scheduled facility operating hours and on days without precipitation.
- c. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

2. Sampling Event Visual Observations

Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

- a. The Discharger shall ensure that visual observations of storm water discharged from containment sources (e.g. secondary containment or storage ponds) are conducted at the time that the discharge is sampled.
- b. Any Discharger employing volume-based or flow-based treatment BMPs shall sample any bypass that occurs while the visual observations and sampling of storm water discharges are conducted.
- c. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.
- d. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.
- e. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

3. Visual Observation Records

The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, presence and probable source of any observed pollutants, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

4. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

B. Sampling and Analysis

1. A Qualifying Storm Event (QSE) is a precipitation event that:
 - a. Produces a discharge for at least one drainage area; and,
 - b. Is preceded by 48 hours with no discharge from any drainage area.
2. The Discharger shall collect and analyze storm water samples from two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30).
3. Compliance Group Participants are only required to collect and analyze storm water samples from one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of the reporting year (January 1 to June 30).
4. Except as provided in Section XI.C.4 (Representative Sampling Reduction), samples shall be collected from each drainage area at all discharge locations. The samples must be:
 - a. Representative of storm water associated with industrial activities and any commingled authorized NSWDS; or,
 - b. Associated with the discharge of contained storm water.
5. Samples from each discharge location shall be collected within four (4) hours of:
 - a. The start of the discharge; or,
 - b. The start of facility operations if the QSE occurs within the previous 12-hour period (e.g., for storms with discharges that begin during the night for facilities with day-time operating hours). Sample collection is required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii.
6. The Discharger shall analyze all collected samples for the following parameters:
 - a. Total suspended solids (TSS) and oil and grease (O&G);
 - b. pH (see Section XI.C.2);

- c. Additional parameters identified by the Discharger on a facility-specific basis that serve as indicators of the presence of all industrial pollutants identified in the pollutant source assessment (Section X.G.2). These additional parameters may be modified (added or removed) in accordance with any updated SWPPP pollutant source assessment;
 - d. Additional applicable parameters listed in Table 1 below. These parameters are dependent on the facility Standard Industrial Classification (SIC) code(s);
 - e. Additional applicable industrial parameters related to receiving waters with 303(d) listed impairments or approved TMDLs based on the assessment in Section X.G.2.a.ix. Test methods with lower detection limits may be necessary when discharging to receiving waters with 303(d) listed impairments or TMDLs;
 - f. Additional parameters required by the Regional Water Board. The Discharger shall contact its Regional Water Board to determine appropriate analytical test methods for parameters not listed in Table 2 below. These analytical test methods will be added to SMARTS; and
 - g. For discharges subject to Subchapter N, additional parameters specifically required by Subchapter N. If the discharge is subject to ELGs, the Dischargers shall contact the Regional Water Board to determine appropriate analytical methods for parameters not listed in Table 2 below.
7. The Discharger shall select corresponding NALs, analytical test methods,, and reporting units from the list provided in Table 2 below. SMARTS will be updated over time to add additional acceptable analytical test methods. Dischargers may propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, the analytical test method will be added to SMARTS.
 8. The Discharger shall ensure that the collection, preservation and handling of all storm water samples are in accordance with Attachment H, Storm Water Sample Collection and Handling Instructions.
 9. Samples from different discharge locations shall not be combined or composited except as allowed in Section XI.C.5 (Qualified Combined Samples).
 10. The Discharger shall ensure that all laboratory analyses are conducted according to test procedures under 40 Code of Federal Regulations part 136, including the observation of holding times, unless other test procedures have been specified in this General Permit or by the Regional Water Board.

11. Sampling Analysis Reporting

- a. The Discharger shall submit all sampling and analytical results for all individual or Qualified Combined Samples via SMARTS within 30 days of obtaining all results for each sampling event.
- b. The Discharger shall provide the method detection limit when an analytical result from samples taken is reported by the laboratory as a “non-detect” or less than the method detection limit. A value of zero shall not be reported.
- c. The Discharger shall provide the analytical result from samples taken that is reported by the laboratory as below the minimum level (often referred to as the reporting limit) but above the method detection limit.

Reported analytical results will be averaged automatically by SMARTS. For any calculations required by this General Permit, SMARTS will assign a value of zero (0) for all results less than the minimum level as reported by the laboratory.

TABLE 1: Additional Analytical Parameters

SIC code	SIC code Description	Parameters*
102X	Copper Ores	COD; N+N
12XX	Coal Mines	Al; Fe
144X	Sand and Gravel	N+N
207X	Fats and Oils	BOD; COD; N+N
2421	Sawmills & Planning Mills	COD; Zn
2426	Hardwood Dimension	COD
2429	Special Product Sawmills	COD
243X	Millwork, Veneer, Plywood	COD
244X	Wood Containers	COD
245X	Wood Buildings & Mobile Homes	COD
2491	Wood Preserving	As; Cu
2493	Reconstituted Wood Products	COD
263X	Paperboard Mills	COD
281X	Industrial Inorganic Chemicals	Al; Fe; N+N
282X	Plastic Materials, Synthetics	Zn
284X	Soaps, Detergents, Cosmetics	N+N; Zn
287X	Fertilizers, Pesticides, etc.	Fe; N+N; Pb; Zn; P
301X	Tires, Inner Tubes	Zn
302X	Rubber and Plastic Footwear	Zn
305X	Rubber & Plastic Sealers & Hoses	Zn
306X	Misc. Fabricated Rubber Products	Zn
325X	Structural Clay Products	Al
326X	Pottery & Related Products	Al
3297	Non-Clay Refractories	Al
327X	Concrete, Gypsum, Plaster Products (Except 3274)	Fe
3295	Minerals & Earths	Fe
331X	Steel Works, Blast Furnaces, Rolling and Finishing Mills	Al; Zn
332X	Iron and Steel Foundries	Al; Cu; Fe; Zn
335X	Metal Rolling, Drawing, Extruding	Cu; Zn

336X	Nonferrous Foundries (Castings)	Cu; Zn
34XX	Fabricated Metal Products (Except 3479)	Zn; N+N; Fe; Al
3479	Coating and Engraving	Zn; N+N
4953	Hazardous Waste Facilities	NH ₃ ; Mg; COD; As; Cn; Pb; HG; Se; Ag
44XX	Water Transportation	Al; Fe; Pb; Zn
45XX	Air Transportation Facilities ¹⁶	BOD; COD; NH ₃
4911	Steam Electric Power Generating Facilities	Fe
4953	Landfills and Land Application Facilities	Fe
5015	Dismantling or Wrecking Yards	Fe; Pb; Al
5093	Scrap and Waste Materials (not including source-separated recycling)	Fe; Pb; Al; Zn; COD

*Table 1 Parameter Reference	
Ag – Silver	Mg – Magnesium
Al – Aluminum	N+N - Nitrate & Nitrite Nitrogen
As – Arsenic	NH – Ammonia
BOD – Biochemical Oxygen Demand	Ni – Nickel
Cd - Cadmium	P – Phosphorus
Cn – Cyanide	Se – Selenium
COD – Chemical Oxygen Demand	TSS – Total Suspended Solids
Cu – Copper	Zn – Zinc
Fe – Iron	Pb – Lead
Hg – Mercury	

¹⁶ Only airports (SIC 4512-4581) where a single Discharger, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, are required to monitor these parameters for those outfalls that collect runoff from areas where deicing activities occur.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2	pH units	N/A	Less than 6.0 Greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500–CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/l	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition

EPA – U.S. EPA test methods

(H) – Hardness dependent

* Minimum parameters required by this General Permit

**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

C. Methods and Exceptions

1. The Discharger shall comply with the monitoring methods in this General Permit and Attachment H.
2. pH Methods
 - a. Dischargers that are not subject to Subchapter N ELGs mandating pH analysis related to acidic or alkaline sources and have never entered Level 1 status for pH, are eligible to screen for pH using wide range litmus pH paper or other equivalent pH test kits. The pH screen shall be performed as soon as practicable, but no later than 15 minutes after the sample is collected.
 - b. Dischargers subject to Subchapter N ELGs shall either analyze samples for pH using methods in accordance with 40 Code of Federal Regulations 136 for testing storm water or use a calibrated portable instrument for pH.
 - c. Dischargers that enter Level 1 status (see Section XII.C) for pH shall, in the subsequent reporting years, analyze for pH using methods in accordance with 40 Code of Federal Regulations 136 or use a calibrated portable instrument for pH.
 - d. Dischargers using a calibrated portable instrument for pH shall ensure that all field measurements are conducted in accordance with the accompanying manufacturer's instructions.
3. Alternative Discharge Locations
 - a. The Discharger is required to identify, when practicable, alternative discharge locations for any discharge locations identified in accordance with Section XI.B.4 if the facility's discharge locations are:
 - i. Affected by storm water run-on from surrounding areas that cannot be controlled; and/or,
 - ii. Difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).
 - b. The Discharger shall submit and certify via SMARTS any alternative discharge location or revisions to the alternative discharge locations in the Monitoring Implementation Plan.
4. Representative Sampling Reduction
 - a. The Discharger may reduce the number of locations to be sampled in each drainage area (e.g., roofs with multiple downspouts, loading/unloading areas with multiple storm drains) if the industrial

activities, BMPs, and physical characteristics (grade, surface materials, etc.) of the drainage area for each location to be sampled are substantially similar to one another. To qualify for the Representative Sampling Reduction, the Discharger shall provide a Representative Sampling Reduction justification in the Monitoring Implementation Plan section of the SWPPP.

- b. The Representative Sampling Reduction justification shall include:
 - i. Identification and description of each drainage area and corresponding discharge location(s);
 - ii. A description of the industrial activities that occur throughout the drainage area;
 - iii. A description of the BMPs implemented in the drainage area;
 - iv. A description of the physical characteristics of the drainage area;
 - v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar; and,
 - vi. An identification of the discharge location(s) selected for representative sampling, and rationale demonstrating that the selected location(s) to be sampled are representative of the discharge from the entire drainage area.
- c. A Discharger that satisfies the conditions of subsection 4.b.i through v above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Representative Sampling Reduction justification.
- d. Upon submittal of the Representative Sampling Reduction justification, the Discharger may reduce the number of locations to be sampled in accordance with the Representative Sampling Reduction justification. The Regional Water Board may reject the Representative Sampling Reduction justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Representative Sampling Reduction until the Regional Water Board approves the Representative Sampling Reduction justification.

5. Qualified Combined Samples

- a. The Discharger may authorize an analytical laboratory to combine samples of equal volume from as many as four (4) discharge locations if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) within each of the drainage areas are substantially similar to one another.

- b. The Qualified Combined Samples justification shall include:
 - i. Identification and description of each drainage area and corresponding discharge locations;
 - ii. A description of the BMPs implemented in the drainage area;
 - iii. A description of the industrial activities that occur throughout the drainage area;
 - iv. A description of the physical characteristics of the drainage area; and,
 - v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar.
 - c. A Discharger that satisfies the conditions of subsection 5.b.i through iv above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Qualified Combined Samples justification.
 - d. Upon submittal of the Qualified Combined Samples justification revisions in the Monitoring Implementation Plan, the Discharger may authorize the lab to combine samples of equal volume from as many as four (4) drainage areas. The Regional Water Board may reject the Qualified Combined Samples justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Qualified Combined Samples justification until the Regional Water Board approves the Qualified Combined Samples justification.
 - e. Regional Water Board approval is necessary to combine samples from more than four (4) discharge locations.
6. Sample Collection and Visual Observation Exceptions
- a. Sample collection and visual observations are not required under the following conditions:
 - i. During dangerous weather conditions such as flooding or electrical storms; or,
 - ii. Outside of scheduled facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operating hours.
 - b. In the event that samples are not collected, or visual observations are not conducted in accordance with Section XI.B.5 due to these exceptions, an explanation shall be included in the Annual Report.

- c. Sample collection is not required for drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.
7. Sampling Frequency Reduction Certification
 - a. Dischargers are eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:
 - i. Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs as defined in Section XII.A; and
 - ii. The Discharger is in full compliance with the requirements of this General Permit and has updated, certified and submitted via SMARTS all documents, data, and reports required by this General Permit during the time period in which samples were collected.
 - b. The Regional Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.
 - c. An eligible Discharger shall certify via SMARTS that it meets the conditions in subsection 7.a above.
 - d. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.
 - e. Dischargers who participate in a Compliance Group and certify a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year.
 - f. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the Regional Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the Regional Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted via SMARTS by the Discharger.
 - g. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs (Section XII.A).

D. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

1. In addition to the other requirements in this General Permit, Dischargers with facilities subject to storm water ELGs in Subchapter N shall:
 - a. Collect and analyze samples from QSEs for each regulated pollutant specified in the appropriate category in Subchapter N as specified in Section XI.B;
 - b. For Dischargers with facilities subject to 40 Code of Federal Regulations parts 419¹⁷ and 443¹⁸, estimate or calculate the volume of industrial storm water discharges from each drainage area subject to the ELGs and the mass of each regulated pollutant as defined in parts 419 and 443; and,
 - c. Ensure that the volume/mass estimates or calculations required in subsection b are completed by a California licensed professional engineer.
2. Dischargers subject to Subchapter N shall submit the information in Section XI.D.1.a through c in their Annual Report.
3. Dischargers with facilities subject to storm water ELGs in Subchapter N are ineligible for the Representative Sampling Reduction in Section XI.C.4.

XII. EXCEEDANCE RESPONSE ACTIONS (ERAs)

A. NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this General Permit and shall compare the results to the two types of NAL values in Table 2 to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in Table 2. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA's NPDES Storm Water

¹⁷ Part 419 - Petroleum refining point source category

¹⁸ Part 443 - Effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category

Sampling Guidance Document.¹⁹ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized by XI.C.5) to the corresponding instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

B. Baseline Status

At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

C. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.²⁰

1. Level 1 ERA Evaluation

- a. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:
 - b. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,
 - c. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

2. Level 1 ERA Report

¹⁹ U.S. EPA. NPDES Storm Water Sampling Guidance Document. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of February 4, 2014]

²⁰ For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported.

- a. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :
 - i. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;
 - ii. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:
 - 1) A summary of the Level 1 ERA Evaluation required in subsection C.1 above; and,
 - 2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.
 - iii. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).
 - b. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.
3. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.

Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS.

D. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.²¹

1. Level 2 ERA Action Plan

²¹ For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

- a. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection D.2.a through c the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.
- b. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.
- c. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.
- d. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.
- e. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section D.2.a through c.

2. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

a. Industrial Activity BMPs Demonstration

This shall include the following requirements, as applicable:

- i. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);
- ii. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);
- iii. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve

compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

- iv. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:
 - 1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;
 - 2) Estimated costs of the additional BMPs evaluated; and,
 - 3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.
 - v. The description and analysis of BMPs required in subsection a.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,
 - vi. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.
- b. Non-Industrial Pollutant Source Demonstration

This shall include:

- i. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

- ii. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;
 - iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;
 - iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;
 - v. A summary of all existing BMPs for that parameter; and,
 - vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.
- c. Natural Background Pollutant Source Demonstration

This shall include:

- i. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);
- ii. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;
- iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;
- iv. Map showing the reference site location in relation to facility along with available land cover information;
- v. Reference site and test site elevation;

- vi. Available geology and soil information for reference and test sites;
- vii. Photographs showing site vegetation;
- viii. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,
- ix. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

3. Level 2 ERA Technical Report Submittal

- a. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report described in Section D.2 above.
- b. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.
- c. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances in accordance with Section XII.D.2.a.ii), facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.
- d. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

4. Eligibility for Returning to Baseline Status

- a. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection 2.a.i through iii above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section D.3.c.
- b. Dischargers are ineligible to return to baseline status if they submit any of the following:
 - i. A industrial activity BMP demonstration in accordance with subsection 2.a.iv above;
 - ii. An non-industrial pollutant source demonstration; or,
 - iii. A natural background pollutant source demonstration.

5. Level 2 ERA Implementation Extension

- a. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:
 - i. Reasons for the time extension;
 - ii. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
 - iii. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.
- b. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

XIII. INACTIVE MINING OPERATION CERTIFICATION

- A.** Inactive mining operations are defined in Part 3 of Attachment A of this General Permit. The Discharger may, in lieu of complying with the General Permit requirements described in subsection B below, certify and submit via SMARTS that their inactive mining operation meets the following conditions:
1. The Discharger has determined and justified in the SWPPP that it is impracticable to implement the monitoring requirements in this General Permit for the inactive mining operation;
 2. A SWPPP has been signed (wet signature and license number) by a California licensed professional engineer and is being implemented in accordance with the requirements of this General Permit; and,
 3. The facility is in compliance with this General Permit, except as provided in subsection B below.
- B.** The Discharger who has certified and submitted that they meet the conditions in subsection A above, are not subject to the following General Permit requirements:
1. Monitoring Implementation Plan in Section X.I;
 2. Monitoring Requirements in Section XI;
 3. Exceedance Response Actions (ERAs) in Section XII; and,
 4. Annual Report Requirements in Section XVI.
- C.** Inactive Mining Operation Certification Submittal Schedule
1. The Discharger shall certify and submit via SMARTS NOI coverage PRDs listed in Section II.B.1 and meet the conditions in subsection A above.
 2. The Discharger shall annually inspect the inactive mining site and certify via SMARTS no later than July 15th of each reporting year, that their inactive mining operation continues to meet the conditions in subsection A above.
 3. The Discharger shall have a California licensed professional engineer review and update the SWPPP if there are changes to their inactive mining operation or additional BMPs are needed to comply with this General Permit. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer.
 4. The Discharger shall certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s).

XIV. COMPLIANCE GROUPS AND COMPLIANCE GROUP LEADERS

A. Compliance Group Qualification Requirements

1. Any group of Dischargers of the same industry type or any QISP representing Dischargers of the same industry type may form a Compliance Group. A Compliance Group shall consist of Dischargers that operate facilities with similar types of industrial activities, pollutant sources, and pollutant characteristics (e.g., scrap metals recyclers would join a different group than paper recyclers, truck vehicle maintenance facilities would join a different group than airplane vehicle maintenance facilities, etc.). A Discharger participating in a Compliance Group is termed a Compliance Group Participant. Participation in a Compliance Group is not required. Compliance Groups may be formed at any time.
2. Each Compliance Group shall have a Compliance Group Leader.
3. To establish a Compliance Group, the Compliance Group Leader shall register as a Compliance Group Leader via SMARTS. The registration shall include documentation demonstrating compliance with the Compliance Group qualification requirements above and a list of the Compliance Group Participants.
4. Each Compliance Group Participant shall register as a member of an established Compliance Group via SMARTS.
5. The Executive Director of the State Water Board may review Compliance Group registrations and/or activities for compliance with the requirements of this General Permit. The Executive Director may reject the Compliance Group, the Compliance Group Leader, or individual Compliance Group Participants within the Compliance Group.

B. Compliance Group Leader Responsibilities

1. A Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.
2. The Compliance Group Leader shall assist Compliance Group Participants with all compliance activities required by this General Permit.
3. A Compliance Group Leader shall prepare a Consolidated Level 1 ERA Report for all Compliance Group Participants with Level 1 status for the same parameter. Compliance Group Participants who certify and submit these Consolidated Level 1 ERA Reports are subject to the same provisions as individual Dischargers with Level 1 status, as described in Section XII.C. A Consolidated Level 1 ERA Report is equivalent to a Level 1 ERA Report.

4. The Compliance Group Leader shall update the Consolidated Level 1 ERA Report as needed to address additional Compliance Group Participants with ERA Level 1 status.
5. A Compliance Group Leader shall prepare a Level 2 ERA Action Plan specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Action Plans are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.
6. A Compliance Group Leader shall prepare a Level 2 ERA Technical Report specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Technical Reports are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.
7. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants that have entered Level 2 status prior to preparing the individual Level 2 ERA Technical Report.
8. The Compliance Group Leader shall revise the Consolidated Level 1 ERA Report, individual Level 2 ERA Action Plans, or individual Level 2 Technical Reports in accordance with any comments received from the Water Boards.
9. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants at a minimum of once per reporting year (July 1 to June 30).

C. Compliance Group Participant Responsibilities

1. Each Compliance Group Participant is responsible for permit compliance for the Compliance Group Participant's facility and for ensuring that the Compliance Group Leader's activities related to the Compliance Group Participant's facility comply with this General Permit.
2. Compliance Group Participants with Level 1 status shall certify and submit via SMARTS the Consolidated Level 1 ERA Report. The Compliance Group Participants shall certify that they have reviewed the Consolidated Level 1 ERA Report and have implemented any required additional BMPs. Alternatively, the Compliance Group Participant may submit an individual Level 1 ERA Report in accordance with the provisions in Section XII.C.2.
3. Compliance Group Participants with Level 2 status shall certify and submit via SMARTS their individual Level 2 ERA Action Plan and Technical Report prepared by their Compliance Group Leader. Each Compliance Group Participant shall certify that they have reviewed the Level 2 ERA Action Plan and Technical Report and will implement any required additional BMPs.

4. Compliance Group Participants can at any time discontinue their participation in their associated Compliance Group via SMARTS. Upon discontinuation, the former Compliance Group Participant is immediately subject to the sampling and analysis requirements described in Section XI.B.2.

XV. ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Discharger shall conduct one Annual Evaluation for each reporting year (July 1 to June 30). If the Discharger conducts an Annual Evaluation fewer than eight (8) months, or more than sixteen (16) months, after it conducts the previous Annual Evaluation, it shall document the justification for doing so. The Discharger shall revise the SWPPP, as appropriate, and implement the revisions within 90 days of the Annual Evaluation. At a minimum, Annual Evaluations shall consist of:

- A. A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;
- B. An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;
- C. An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII;
- D. An inspection of equipment needed to implement the BMPs;
- E. An inspection of any BMPs;
- F. A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDDs; and,
- G. An assessment of any other factors needed to comply with the requirements in Section XVI.B.

XVI. ANNUAL REPORT

- A. The Discharger shall certify and submit via SMARTS an Annual Report no later than July 15th following each reporting year using the standardized format and checklists in SMARTS.
- B. The Discharger shall include in the Annual Report:
 1. A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit;

2. An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;
3. An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and,
4. The date(s) of the Annual Evaluation.

XVII. CONDITIONAL EXCLUSION - NO EXPOSURE CERTIFICATION (NEC)

A. Discharges composed entirely of storm water that has not been exposed to industrial activity are not industrial storm water discharges. Dischargers are conditionally excluded from complying with the SWPPP and monitoring requirements of this General Permit if all of the following conditions are met:

1. There is no exposure of Industrial Materials and Activities to rain, snow, snowmelt, and/or runoff;
2. All unauthorized NSWDS have been eliminated and all authorized NSWDS meet the conditions of Section IV;
3. The Discharger has certified and submitted via SMARTS PRDs for NEC coverage pursuant to the instructions in Section II.B.2; and,
4. The Discharger has satisfied all other requirements of this Section.

B. NEC Specific Definitions

1. No Exposure - all Industrial Materials and Activities are protected by a Storm-Resistant Shelter to prevent all exposure to rain, snow, snowmelt, and/or runoff.
2. Industrial Materials and Activities - includes, but is not limited to, industrial material handling activities or equipment, machinery, raw materials, intermediate products, by-products, final products, and waste products.
3. Material Handling Activities - includes the storage, loading and unloading, transportation, or conveyance of any industrial raw material, intermediate product, final product, or waste product.
4. Sealed - banded or otherwise secured, and without operational taps or valves.
5. Storm-Resistant Shelters - includes completely roofed and walled buildings or structures. Also includes structures with only a top cover supported by permanent supports but with no side coverings, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), or track-out, and there is no storm water discharged from within the structure that comes into contact with any materials.

C. NEC Qualifications

To qualify for an NEC, a Discharger shall:

1. Except as provided in subsection D below, provide a Storm-Resistant Shelter to protect Industrial Materials and Activities from exposure to rain, snow, snowmelt, run-on, and runoff;
2. Inspect and evaluate the facility annually to determine that storm water exposed to industrial materials or equipment has not and will not be discharged to waters of the United States. Evaluation records shall be maintained for five (5) years in accordance with Section XXI.J.4;
3. Register for NEC coverage by certifying that there are no discharges of storm water contaminated by exposure to Industrial Materials and Activities from areas of the facility subject to this General Permit, and certify that all unauthorized NSWDS have been eliminated and all authorized NSWDS meet the conditions of Section IV (Authorized NSWDS). NEC coverage and annual renewal requires payment of an annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.; and,
4. Submit PRDs for NEC coverage shall be prepared and submitted in accordance with the:
 - a. Certification requirements in Section XXI.K; and,
 - b. Submittal schedule in accordance with Section II.B.2.

D. NEC Industrial Materials and Activities - Storm-Resistant Shelter Not Required

To qualify for NEC coverage, a Storm-Resistant Shelter is not required for the following:

1. Drums, barrels, tanks, and similar containers that are tightly Sealed, provided those containers are not deteriorated, do not contain residual industrial materials on the outside surfaces, and do not leak;
2. Adequately maintained vehicles used in material handling;
3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt);
4. Any Industrial Materials and Activities that are protected by a temporary shelter for a period of no more than ninety (90) days due to facility construction or remodeling; and,
5. Any Industrial Materials and Activities that are protected within a secondary containment structure that will not discharge storm water to waters of the United States.

E. NEC Limitations

1. NEC coverage is available on a facility-wide basis only, not for individual outfalls. If a facility has industrial storm water discharges from one or more drainage areas that require NOI coverage, Dischargers shall register for NOI coverage for the entire facility through SMARTS in accordance with Section II.B.2. Any drainage areas on that facility that would otherwise qualify for NEC coverage may be specially addressed in the facility SWPPP by including an NEC Checklist and a certification statement demonstrating that those drainage areas of the facility have been evaluated; and that none of the Industrial Materials or Activities listed in subsection C above are, or will be in the foreseeable future, exposed to precipitation.
2. If circumstances change and Industrial Materials and Activities become exposed to rain, snow, snowmelt, and/or runoff, the conditions for this exclusion shall no longer apply. In such cases, the Discharger may be subject to enforcement for discharging without a permit. A Discharger with NEC coverage that anticipates changes in circumstances should register for NOI coverage at least seven (7) days before anticipated exposure.
3. The Regional Water Board may deny NEC coverage and require NOI coverage upon determining that:
 - a. Storm water is exposed to Industrial Materials and Activities; and/or
 - b. The discharge has a reasonable potential to cause or contribute to an exceedance of an applicable water quality standards.

F. NEC Permit Registration Documents Required for Initial NEC Coverage

A Discharger shall submit via SMARTS the following PRDs for NEC coverage to document the applicability of the conditional exclusion:

1. The NEC form, which includes:
 - a. The legal name, postal address, telephone number, and e-mail address of the Discharger;
 - b. The facility business name and physical mailing address, the county name, and a description of the facility location if the facility does not have a physical mailing address; and,
 - c. Certification by the Discharger that all PRDs submitted are correct and true and the conditions of no exposure have been met.
2. An NEC Checklist prepared by the Discharger demonstrating that the facility has been evaluated; and that none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

- a. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;
- b. Materials or residuals on the ground or in storm water inlets from spills/leaks;
- c. Materials or products from past industrial activity;
- d. Material handling equipment (except adequately maintained vehicles);
- e. Materials or products during loading/unloading or transporting activities;
- f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
- g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
- i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
- j. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,
- k. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. Site Map (see Section X.E).

G. Requirements for Annual NEC Coverage Recertification

By October 1 of each reporting year beginning in 2015, any Discharger who has previously registered for NEC coverage shall either submit and certify an NEC demonstrating that the facility has been evaluated, and that none of the Industrial Materials or Activities listed above are, or will be in the foreseeable future, exposed to precipitation, or apply for NOI coverage.

H. NEC Certification Statement

All NEC certifications and re-certifications shall include the following certification statement:

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of 'no exposure' and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities

or materials from the industrial facility identified in this document (except as allowed in subsection C above). I understand that I am obligated to submit a no exposure certification form annually to the State Water Board and, if requested, to the operator of the local Municipal Separate Storm Sewer System (MS4) into which this facility discharges (where applicable). I understand that I must allow the Water Board staff, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

XVIII. SPECIAL REQUIREMENTS - PLASTIC MATERIALS

- A.** Facilities covered under this General Permit that handle Plastic Materials are required to implement BMPs to eliminate discharges of plastic in storm water in addition to the other requirements of this General Permit that are applicable to all other Industrial Materials and Activities. Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site. Any Dischargers' facility handling Plastic Materials will be referred to as Plastics Facilities in this General Permit. Any Plastics Facility covered under this General Permit that manufactures, transports, stores, or consumes these materials shall submit information to the State Water Board in their PRDs, including the type and form of plastics, and which BMPs are implemented at the facility to prevent illicit discharges. Pursuant to Water Code section 13367, Plastics Facilities are subject to mandatory, minimum BMPs.
1. At a minimum, Plastics Facilities shall implement and include in the SWPPP:
 - a. Containment systems at each on-site storm drain discharge location down gradient of areas containing plastic material. The containment system shall be designed to trap all particles retained by a 1mm mesh screen, with a treatment capacity of no less than the peak flow rate from a one-year, one-hour storm.
 - b. When a containment system is infeasible, or poses the potential to cause an illicit discharge, the facility may propose a technically feasible

alternative BMP or suite of BMPs. The alternative BMPs shall be designed to achieve the same or better performance standard as a 1mm mesh screen with a treatment capacity of the peak flow rate from a one-year, one-hour storm. Alternative BMPs shall be submitted to the Regional Water Board for approval.

- c. Plastics Facilities shall use durable sealed containers designed not to rupture under typical loading and unloading activities at all points of plastic transfer and storage.
 - d. Plastics Facilities shall use capture devices as a form of secondary containment during transfers, loading, or unloading Plastic Materials. Examples of capture devices for secondary containment include, but are not limited to catch pans, tarps, berms or any other device that collects errant material.
 - e. Plastics Facilities shall have a vacuum or vacuum-type system for quick cleanup of fugitive plastic material available for employees.
 - f. Pursuant to Water Code section 13367(e)(1), Plastics Facilities that handle Plastic Materials smaller than 1mm in size shall develop a containment system designed to trap the smallest plastic material handled at the facility with a treatment capacity of at least the peak flow rate from a one-year, one-hour storm, or develop a feasible alternative BMP or suite of BMPs that are designed to achieve a similar or better performance standard that shall be submitted to the Regional Water Board for approval.
2. Plastics Facilities are exempt from the Water Code requirement to install a containment system under section 13367 of the Water Code if they meet one of the following requirements that are determined to be equal to, or exceed the performance requirements of a containment system:
- a. The Discharger has certified and submitted via SMARTS a valid No Exposure Certification (NEC) in accordance with Section XVII; or
 - b. Plastics Facilities are exempt from installing a containment system, if the following suite of eight (8) BMPs is implemented. This combination of BMPs is considered to reduce or prevent the discharge of plastics at a performance level equivalent to or better than the 1mm mesh and flow standard in Water Code section 13367(e)(1).
 - i. Plastics Facilities shall annually train employees handling Plastic Materials. Training shall include environmental hazards of plastic discharges, employee responsibility for corrective actions to prevent errant Plastic Materials, and standard procedures for containing, cleaning, and disposing of errant Plastic Materials.

- ii. Plastics Facilities shall immediately fix any Plastic Materials containers that are punctured or leaking and shall clean up any errant material in a timely manner.
- iii. Plastics Facilities shall manage outdoor waste disposal of Plastic Materials in a manner that prevents the materials from leaking from waste disposal containers or during waste hauling.
- iv. Plastics Facilities that operate outdoor conveyance systems for Plastic Materials shall maintain the system in good operating condition. The system shall be sealed or filtered in such a way as to prevent the escape of materials when in operation. When not in operation, all connection points shall be sealed, capped, or filtered so as to not allow material to escape. Employees operating the conveyance system shall be trained how to operate in a manner that prevents the loss of materials such as secondary containment, immediate spill response, and checks to ensure the system is empty during connection changes.
- v. Plastics Facilities that maintain outdoor storage of Plastic Materials shall do so in a durable, permanent structure that prevents exposure to weather that could cause the material to migrate or discharge in storm water.
- vi. Plastics Facilities shall maintain a schedule for regular housekeeping and routine inspection for errant Plastic Materials. The Plastics Facility shall ensure that their employees follow the schedule.
- vii. PRDs shall include the housekeeping and routine inspection schedule, spill response and prevention procedures, and employee training materials regarding plastic material handling.
- viii. Plastics Facilities shall correct any deficiencies in the employment of the above BMPs that result in errant Plastic Materials that may discharge or migrate off-site in a timely manner. Any Plastic Materials that are discharged or that migrate off-site constitute an illicit discharge in violation of this General Permit.

XIX. REGIONAL WATER BOARD AUTHORITIES

- A.** The Regional Water Boards may review a Discharger’s PRDs for NOI or NEC coverage and administratively reject General Permit coverage if the PRDs are deemed incomplete. The Regional Water Boards may take actions that include rescinding General Permit coverage, requiring a Discharger to revise and re-submit their PRDs (certified and submitted by the Discharger) within a specified time period, requiring the Discharger to apply for different General Permit coverage or a different individual or general permit, or taking no action.
- B.** The Regional Water Boards have the authority to enforce the provisions and requirements of this General Permit. This includes, but is not limited to,

reviewing SWPPPs, Monitoring Implementation Plans, ERA Reports, and Annual Reports, conducting compliance inspections, and taking enforcement actions.

- C. As appropriate, the Regional Water Boards may issue NPDES storm water general or individual permits to a Discharger, categories of Dischargers, or Dischargers within a watershed or geographic area. Upon issuance of such NPDES permits, this General Permit shall no longer regulate the affected Discharger(s).
- D. The Regional Water Boards may require a Discharger to revise its SWPPP, ERA Reports, or monitoring programs to achieve compliance with this General Permit. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.
- E. The Regional Water Boards may approve requests from a Discharger to include co-located, but discontinuous, industrial activities within the same facility under a single NOI or NEC coverage.
- F. Consistent with 40 Code of Federal Regulations section 122.26(a)(9)(i)(D), the Regional Water Boards may require any discharge that is not regulated by this General Permit, that is determined to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States, to be covered under this General Permit as appropriate. Upon designation, the Discharger responsible for the discharge shall obtain coverage under this General Permit.
- G. The Regional Water Boards may review a Discharger's Inactive Mining Operation Certification and reject it at any time if the Regional Water Board determines that access to the facility for monitoring purposes is practicable or that the facility is not in compliance with the applicable requirements of this General Permit.
- H. All Regional Water Board actions that modify a Discharger's obligations under this General Permit must be in writing and should also be submitted in SMARTS.

XX. SPECIAL CONDITIONS

A. Reopener Clause

This General Permit may be reopened and amended to incorporate TMDL-related provisions. This General Permit may also be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, water quality control plans or water quality control policies, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations sections 122.62, 122.63, 122.64, and 124.5.

B. Water Quality Based Corrective Actions

1. Upon determination by the Discharger or written notification by the Regional Water Board that industrial storm water discharges and/or authorized NSWDS contain pollutants that are in violation of Receiving Water Limitations (Section VI), the Discharger shall:
 - a. Conduct a facility evaluation to identify pollutant source(s) within the facility that are associated with industrial activity and whether the BMPs described in the SWPPP have been properly implemented;
 - b. Assess the facility's SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI); and,
 - c. Certify and submit via SMARTS documentation based upon the above facility evaluation and assessment that:
 - i. Additional BMPs and/or SWPPP implementation measures have been identified and included in the SWPPP to meet the Receiving Water Limitations (Section VI); or
 - ii. No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI).
2. The Regional Water Board may reject the Dischargers water quality based corrective actions and/or request additional supporting documentation.

C. Requirements for Dischargers Claiming “No Discharge” through the Notice of Non-Applicability (NONA)

1. For the purpose of the NONA, the Entity (Entities) is referring to the person(s) defined in section 13399.30 of the Water Code.
2. Entities who are claiming “No Discharge” through the NONA shall meet the following eligibility requirements:
 - a. The facility is engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website (or other nearby precipitation data available from other government agencies) so that there will be no discharge of industrial storm water to waters of the United States; or,
 - b. The facility is located in basins or other physical locations that are not hydrologically connected to waters of the United States.
3. When claiming the “No Discharge” option, Entities shall submit and certify via SMARTS both the NONA and a No Discharge Technical Report. The No

Discharge Technical Report shall demonstrate the facility meets the eligibility requirements described above.

4. The No Discharge Technical Report shall be signed (wet signature and license number) by a California licensed professional engineer.

XXI. STANDARD CONDITIONS

A. Duty to Comply

Dischargers shall comply with all standard conditions in this General Permit. Permit noncompliance constitutes a violation of the Clean Water Act and the Water Code and is grounds for enforcement action and/or removal from General Permit coverage.

Dischargers shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions.

B. Duty to Reapply

Dischargers that wish to continue an activity regulated under this General Permit after the expiration date of this General Permit shall apply for and obtain authorization from the Water Boards as required by the new general permit once it is issued.

C. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. Submittal of a request by the Discharger for General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.
2. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

D. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for a Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

E. Duty to Mitigate

Dischargers shall take all responsible steps to reduce or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Proper Operation and Maintenance

Dischargers shall at all times properly operate and maintain any facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a Discharger when necessary to achieve compliance with the conditions of this General Permit.

G. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges. It also does not authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of federal, state, or local laws and regulations.

H. Duty to Provide Information

Upon request by the relevant agency, Dischargers shall provide information to determine compliance with this General Permit to the Water Boards, U.S. EPA, or local Municipal Separate Storm Sewer System (MS4) within a reasonable time. Dischargers shall also furnish, upon request by the relevant agency, copies of records that are required to be kept by this General Permit.

I. Inspection and Entry

Dischargers shall allow the Water Boards, U.S. EPA, and local MS4 (including any authorized contractor acting as their representative), to:

1. Enter upon the premises at reasonable times where a regulated industrial activity is being conducted or where records are kept under the conditions of this General Permit;
2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;
3. Inspect the facility at reasonable times; and,
4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. If Dischargers monitor any pollutant more frequently than required, the results of such monitoring shall be included in the calculation and reporting of the data submitted.
3. Records of monitoring information shall include:
 - a. The date, exact location, and time of sampling or measurement;
 - b. The date(s) analyses were performed;
 - c. The individual(s) that performed the analyses;
 - d. The analytical techniques or methods used; and,
 - e. The results of such analyses.
4. Dischargers shall retain, for a period of at least five (5) years, either a paper or electronic copy of all storm water monitoring information, records, data, and reports required by this General Permit. Copies shall be available for review by the Water Board's staff at the facility during scheduled facility operating hours.
5. Upon written request by U.S. EPA or the local MS4, Dischargers shall provide paper or electronic copies of Annual Reports or other requested records to the Water Boards, U.S. EPA, or local MS4 within ten (10) days from receipt of the request.

K. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) for NOI and NEC coverage shall be certified and submitted via SMARTS by the Discharger's Legally Responsible Person (LRP). All other documents may be certified and submitted via SMARTS by the LRP or by their designated Duly Authorized Representative.
2. When a new LRP or Duly Authorized Representative is designated, the Discharger shall ensure that the appropriate revisions are made via SMARTS. In unexpected or emergency situations, it may be necessary for the Discharger to directly contact the State Water Board's Storm Water Section to register for SMARTS account access in order to designate a new LRP.
3. Documents certified and submitted via SMARTS by an unauthorized or ineligible LRP or Duly Authorized Representative are invalid.

4. LRP eligibility is as follows:
 - a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or
 - ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).
5. Duly Authorized Representative eligibility is as follows:
 - a. The Discharger must authorize via SMARTS any person designated as a Duly Authorized Representative;
 - b. The authorization shall specify that a person designated as a Duly Authorized Representative has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company; and,
 - c. The authorization must be current (it has been updated to reflect a different individual or position) prior to any report submittals, certifications, or records certified by the Duly Authorized Representative.

L. Certification

Any person signing, certifying, and submitting documents under Section XXI.K above shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

M. Anticipated Noncompliance

Dischargers shall give advance notice to the Regional Water Board and local MS4 of any planned changes in the industrial activity that may result in noncompliance with this General Permit.

N. Penalties for Falsification of Reports

Clean Water Act section 309(c)(4) provides that any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the initiation of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under section 311 of the Clean Water Act.

P. Severability

The provisions of this General Permit are severable; if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Penalties for Violations of Permit Conditions

1. Clean Water Act section 309 provides significant penalties for any person that violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing any such section in a permit issued under section 402. Any

person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed \$37,500²² per calendar day of such violation, as well as any other appropriate sanction provided by section 309 of the Clean Water Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which may be greater than penalties under the Clean Water Act.

R. Transfers

Coverage under this General Permit is non-transferrable. When operation of the facility has been transferred to another entity, or a facility is relocated, new PRDs for NOI and NEC coverage must be certified and submitted via SMARTS prior to the transfer, or at least seven (7) days prior to the first day of operations for a relocated facility.

S. Continuation of Expired General Permit

If this General Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 Code of Federal Regulations 122.6 and remain in full force and effect.

²² May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FACT SHEET FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
NPDES NO. CAS000001**

*The factsheet to the IGP was updated in January 2015 to correct typographical errors. The deadline listed in Section I.D.13 (page 8) and Section II.G.1 (page 27) of the factsheet for dischargers with outfalls to ocean waters to develop and implement a monitoring program in compliance with the California Ocean Plan model monitoring provisions was corrected to July 1, 2015, which is the deadline listed in finding 44 in the general order.

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I. BACKGROUND

A. Purpose

The purpose of this Fact Sheet is to explain the legal requirements and technical rationale that serve as the basis for the requirements of this Order 2014-0057-DWQ (General Permit), adopted by the State Water Resources Control Board (State Water Board) on April 1, 2014. This General Permit regulates operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges). This General Permit replaces Water Quality Order 97-03-DWQ. This Fact Sheet does not contain any independently-enforceable requirements; the General Permit contains all of the actual requirements applicable to Dischargers. In case of any conflict between the Fact Sheet and the General Permit, the terms of the General Permit govern.

B. History

The Federal Clean Water Act (CWA)¹ prohibits discharges from point sources to waters of the United States, unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (CWA § 301(a).) In 1987, the CWA was amended to establish a framework for regulating municipal storm water discharges and discharges of storm water associated with industrial activity (industrial storm water discharges) under the NPDES program. (CWA § 402(p).) In 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated regulations, commonly known as Phase I, establishing application requirements for storm water permits for specified categories of industries. (40 C.F.R. § 122.26.) In 1992, U.S. EPA revised the monitoring requirements for industrial storm water discharges. (40 C.F.R. § 122.44(i)(2), (4), (5).) In 1999, U.S. EPA adopted additional storm water regulations, known as Phase II. (64 Fed. Reg. 68722.) The Phase II regulations provide for, among other things, a conditional exclusion from NPDES permitting requirements for industrial activities that have no exposure to storm water.

Industrial storm water discharges are regulated pursuant to CWA section 402(p)(3)(A). This provision requires NPDES permits for industrial storm water discharges to implement CWA section 301, which includes requirements for Dischargers to comply with technology-based effluent limitations, and any more stringent water quality-based limitations necessary to meet water quality standards. Technology-based effluent limitations applicable to industrial activities are based on best conventional pollutant control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. (CWA § 301(b)(1)(A) and (2)(A).) To ensure compliance with water quality standards, NPDES permits may also require a Discharger to implement best management practices (BMPs). 40 Code of Federal Regulations section 122.44(k)(4) requires the use of BMPs to control or abate the discharge of pollutants when numeric effluent limitations (NELs) are infeasible. The State Water Board has concluded that it is infeasible to establish

¹ Federal Water Pollution Control Act of 1970 (also referred to as the Clean Water Act or CWA), 33 U.S.C. § 1201 et seq. All further statutory references herein are to the CWA unless otherwise indicated.

NELs for storm water discharges associated with industrial activity due to insufficient information at the time of adoption of this General Permit.

On April 17, 1997, the State Water Board issued NPDES General Permit for Industrial Storm Water Discharges, Excluding Construction Activities, Water Quality Order 97-03-DWQ (previous permit). This General Permit, Order 2014-0057-DWQ rescinds the previous permit and serves as the statewide general permit for industrial storm water discharges. The State Water Board concludes that significant revisions to the previous permit requirements are necessary for implementation, consistency and objective enforcement. As discussed in this Fact Sheet, this General Permit requires Dischargers to:

- Eliminate unauthorized non-storm water discharges (NSWDs);
- Develop and implement storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs);
- Implement minimum BMPs, and advanced BMPs as necessary, to achieve compliance with the effluent and receiving water limitations of this General Permit;
- Conduct monitoring, including visual observations and analytical storm water monitoring for indicator parameters;
- Compare monitoring results for monitored parameters to applicable numeric action levels (NALs) derived from the U.S. EPA 2008 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2008 MSGP) and other industrial storm water discharge monitoring data collected in California;
- Perform the appropriate Exceedance Response Actions (ERAs) when there are exceedances of the NALs; and,
- Certify and submit all permit-related compliance documents via the Storm Water Multiple Application and Report Tracking System (SMARTS). Dischargers shall certify and submit these documents which include, but are not limited to, Permit Registration Documents (PRDs) including Notices of Intent (NOIs), No Exposure Certifications (NECs), and Storm Water Pollution Prevention Plans (SWPPPs), as well as Annual Reports, Notices of Termination (NOTs), Level 1 ERA Reports, and Level 2 ERA Technical Reports.

C. Blue Ribbon Panel of Experts (Panel)

In 2005 and 2006, the State Water Board convened a Blue Ribbon Panel of Experts (Panel) to address the feasibility of NELs in California's storm water permits. Specifically, the Panel was charged with answering the following questions:

Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits?

How would such limitations or criteria be established, and what information and data would be required?²

The Panel was directed to answer these questions for industrial storm water discharge general permits, construction storm water discharge general permits, and area-wide municipal storm water discharge permits. The Panel was also directed to address both technology-based and water quality based limitations and criteria.

In evaluating the establishment of numeric limitations and criteria, the Panel was directed to consider all of the following:

- The ability of the State Water Board to establish appropriate objective limitations or criteria;
- How compliance is to be determined;
- The ability of Dischargers and inspectors to monitor for compliance; and
- The technical and financial ability of Dischargers to comply with the limitations or criteria.

Following an opportunity for public comment, the Panel identified several water quality concerns, public process and program effectiveness issues. A summary of the Panel's recommendations regarding industrial storm water discharges follows:³

- Current data are inadequate; accordingly, the State Water Board should improve monitoring requirements to collect useful data for establishing NALs and NELs.
- Required parameters for further monitoring should be consistent with the type of industrial activity (i.e., monitor for heavy metals when there is a reasonable expectation that the industrial activity will contribute to increased heavy metals concentrations in storm water).
- Insofar as possible, the use of California data (or national data applicable to California) is preferred when setting NELs and NALs.
- Industrial facilities that do not discharge to Municipal Separate Storm Sewer Systems (MS4s) should implement BMPs for their non-industrial exposure (e.g., parking lots, roof runoff) similar to BMPs implemented by commercial facilities in MS4 jurisdictions.

² State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006). <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf>. [as of February 4, 2014].

³ See footnote 2.

- In all cases, Dischargers should implement a suite of minimum BMPs, including, but not limited to, good housekeeping practices, employee training, and preventing exposure of materials to rain.
- Standard Industrial Classification (SIC) code categories are not a satisfactory way of identifying industrial activities at any given site. The State Water Board should develop an improved method of characterizing industrial activities that will improve water quality in storm water.
- Recognizing that implementing the Panel's suggested changes is a large task, the State Water Board should set priorities for implementation of the Panel's suggested approach in order to achieve the greatest reduction of pollutants statewide.
- Recognizing that an increasing number of industries have moved industrial activities indoors to prevent storm water pollution, such facilities should be granted regulatory relief from NALs and/or NELs , but should still be required to comply with any applicable MS4 permit requirements.
- Recognizing the need for improved monitoring and reduction of pollutants in industrial storm water discharges, the State Water Board should consider the total economic impact of its requirements to not economically penalize California industries when compared to industries outside of California.

With regard to the industrial activities component of its charge, the Panel limited its focus to the question of whether sampling data can be used to derive technology-based NELs. The Panel did not address other factors or approaches that may relate to the task of determining technology- and water quality-based NELs consistent with the regulations and law. Examples of these other factors are discussed in more detail in this Fact Sheet. Additionally, in its final report the Panel did not clearly differentiate between the role of numeric and non-numeric effluent limitations, nor did it consider U.S. EPA procedures used to promulgate effluent limitation guidelines (ELGs) in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N).

D. Summary of Significant Changes in this General Permit

The previous permit issued by the State Water Board on April 17, 1997, had been administratively extended since 2002 until the adoption of this General Permit. Significant revisions to the previous permit were necessary to update permit requirements consistent with recent regulatory changes pertaining to industrial storm water under the CWA. This General Permit differs from the previous permit in the following areas:

1. Minimum Best Management Practices (BMPs)

This General Permit requires Dischargers to implement a set of minimum BMPs. Implementation of the minimum BMPs, in combination with any advanced BMPs (BMPs, collectively,) necessary to reduce or prevent pollutants in industrial storm water discharges, serve as the basis for compliance with this General Permit's

technology-based effluent limitations and water quality based receiving water limitations. Although there is great variation in industrial activities and pollutant sources between industrial sectors and, in some cases between operations within the same industrial sector, the minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities.

The previous permit did not require a minimum set of BMPs but rather allowed Dischargers to consider which non-structural BMPs should be implemented and which structural BMPs should be considered for implementation when non-structural BMPs are ineffective.

This General Permit requires Dischargers to implement minimum BMPs (which are mostly non-structural BMPs), and advanced BMPs (which are mostly structural BMPs) when implementation of the minimum BMPs do not meet the requirements of the General Permit. Advanced BMPs consists of treatment control BMPs, exposure reduction BMPs, and storm water containment and discharge reduction BMPs. BMPs that exceed the performance expectation of minimum BMPs are considered advanced BMPs. Dischargers are encouraged to utilize advanced BMPs that infiltrate or reuse storm water where feasible.

The minimum and advanced BMPs required in this General Permit are consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP), guidance developed by the California Stormwater Quality Association, and recommendations by Regional Water Quality Control Board (Regional Water Board) inspectors. Dischargers are required to evaluate BMPs being implemented and determine an appropriate interval for the implementation and inspection of these BMPs.

2. Conditional Exclusion - No Exposure Certification (NEC)

This General Permit applies U.S. EPA Phase II regulations regarding a conditional exclusion for facilities that have no exposure of industrial activities and materials to storm water. (40 C.F.R. § 122.26(g).) (The previous permit required light industries to obtain coverage only if their activities were exposed to storm water.) This General Permit implements current U.S. EPA rules allowing any type of industry to claim a conditional exclusion. The NEC requires enrollment for coverage prior to conditionally excluding a Discharger from a majority of this General Permit's requirements.

3. Electronic Reporting Requirements

This General Permit requires Dischargers to submit and certify all reports electronically via SMARTS. The previous permit used a paper reporting process with electronic reporting as an option.

4. Training Expectations and Roles

This General Permit requires that Dischargers arrange to have appropriately trained personnel implementing this General Permit's requirements at each facility. In

addition, if a Discharger's facility enters Level 1 status, the Level 1 ERA Report must be prepared by a Qualified Industrial Storm Water Practitioner (QISP). All Action Plans and Technical Reports required in Level 2 status must also be prepared by a QISP.

Dischargers may appoint a staff person to complete the QISP training or may contract with an outside QISP. QISP training is tailored to persons with a high degree of technical knowledge and environmental experience. Although QISPs do not need to be California licensed professional engineers, it may be necessary to involve a California licensed professional engineer to perform certain aspects of the Technical Reports.

5. Numeric Action Levels (NALs) and NAL Exceedances

This General Permit contains two types of NAL exceedances. An annual NAL exceedance occurs when the average of all sampling results within a reporting year for a single parameter (except pH) exceeds the applicable annual NAL. The annual NALs are derived from, and function similarly to, the benchmark values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the applicable instantaneous maximum NAL value. Instantaneous maximum NALs for Total Suspended Solids (TSS) and Oil and Grease (O&G) are based on previously gathered California industrial storm water discharge monitoring data. The instantaneous maximum NAL for pH is derived from the benchmark value provided in the 2008 MSGP.

6. Exceedance Response Actions (ERA)

This General Permit requires Dischargers to develop and implement ERAs, when an annual NAL or instantaneous maximum NAL exceedance occurs during a reporting year. The first time an annual NAL or instantaneous maximum NAL exceedance occurs for any one parameter, a Discharger's status is changed from Baseline to Level 1 status, and the Discharger is required to evaluate and revise, as necessary, its BMPs (with the assistance of a QISP) and submit a report prepared by a QISP. The second time an annual NAL or instantaneous maximum NAL exceedance occurs for the same parameter in a subsequent reporting year, the Discharger's status is changed from Level 1 to Level 2 status, and Dischargers are required to submit a Level 2 ERA Action Plan and a Level 2 ERA Technical Report. Unless the demonstration is not accepted by the State Water Board or a Regional Water Board, the Discharger is not required to perform additional ERA requirements for the parameter(s) involved if the Discharger demonstrates that:

- a. Additional BMPs required to eliminate NAL exceedances are not technologically available or economically practicable and achievable; or,
- b. NAL exceedances are solely caused by non-industrial pollutant sources; or,

- c. NAL exceedances are solely attributable to pollutants from natural background sources.

Information supporting the above demonstrations must be included in QISP-prepared Level 2 ERA Technical Reports.

7. CWA section 303(d) Impairment

This General Permit requires a Discharger to monitor additional parameters if the discharge(s) from its facility contributes pollutants to receiving waters that are listed as impaired for those pollutants (CWA section 303(d) listings). This General Permit lists the receiving waters that are 303(d) listed as impaired for pollutants that are likely to be associated with industrial storm water in Appendix 3. For example, if a Discharger discharges to a water body that is listed as impaired for copper, and the discharge(s) from its facility has the potential sources of copper, the Discharger must add copper to the list of parameters to monitor in its storm water discharge.

8. Design Storm Standards for Treatment Control BMPs

This General Permit includes design storm standards for Dischargers implementing treatment control BMPs. The design storm standards include both volume- and flow-based criteria. Dischargers are not required to retrofit existing treatment control BMPs unless required to meet the technology-based effluent limitations and receiving water limitations in this General Permit.

9. Qualifying Storm Event (QSE)

This General Permit defines a QSE as a precipitation event that:

- a. Produces a discharge for at least one drainage area; and,
- b. Is preceded by 48 hours with no discharge from any drainage area.

The definition above differs from the definition in the previous permit, resulting in an increase number of QSEs eligible for sample collection. Therefore, most Dischargers will be able to collect the required number of samples, regardless of their facility location.

10. Sampling Protocols

This General Permit requires Dischargers to collect samples during scheduled facility operating hours from each drainage location within four hours of: (1) the start of the discharge from a QSE occurring during scheduled facility operating hours, or (2) the start of scheduled facility operating hours if the QSE occurred in the previous twelve (12) hours. The benefits of this sampling protocol: (a) allows a more reasonable amount of time to collect samples, (b) increases the likelihood for samples collected at discharge locations to be representative of the drainage area discharge characteristics, (c) increases the number of QSEs eligible for sample collection, and, (d) reduces the likelihood of Dischargers collecting samples with short-term concentration spikes.

The previous permit required that Dischargers collect grab samples during the first hour of discharge that commenced during scheduled facility operating hours. These sample collection requirements were widely considered to be too rigid and out of step with other states' sample collection requirements. Since many storm events begin in the evening or early morning hours, numerous opportunities to collect samples were lost because Dischargers could not obtain samples during the first hour of discharge. Dischargers with facilities that have multiple discharge locations had difficulties collecting samples within such a short timeframe therefore affecting data quality.

11. Sampling Frequency

This General Permit increases the sampling frequency by requiring the Discharger to collect and analyze storm water samples from each discharge location for two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30). The increased sampling, compared to the previous permit's two samples during the wet season, is consistent with the 2008 MSGP and other states' permit requirements and will improve compliance determination with this General Permit. The State Water Board expects that the elimination of the wet season sampling requirements will increase the number of possible QSEs eligible for monitoring.

12. Compliance Groups

To allow industrial facilities to efficiently share knowledge, skills and resources towards achieving General Permit compliance, this General Permit allows the formation of Compliance Groups and Compliance Group Leaders. Dischargers participating in a Compliance Group (Compliance Group Participants) are collectively required to sample twice a year. Compliance Group Leaders are required to be approved through the State Water Board-approved training program process, inspect each facility once within each reporting year, and prepare Level 1 and Level 2 ERA reports as necessary. The Compliance Group option is described in more detail in General Permit section XIV and in this Fact Sheet in the Section titled "Compliance Groups."

13. Discharges to Ocean Waters

This General Permit requires Dischargers with ocean-discharging outfalls subject to model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

II. TECHNICAL RATIONALE FOR REQUIREMENTS IN THIS GENERAL PERMIT

A. Receiving General Permit Coverage

1. This General Permit provides regulatory coverage for new and existing industrial storm water discharges and authorized NSWs from:
 - a. Facilities required by federal regulations to obtain an NPDES permit;
 - b. Facilities designated by the Regional Water Boards to obtain an NPDES permit; and,
 - c. Facilities directed by the Regional Water Boards to obtain coverage specifically under this General Permit. The Regional Water Board typically directs a Discharger to change General Permit coverage under two circumstances:
 - (1) switch from an individual NPDES permit to this General Permit, or
 - (2) switch from the NPDES General Permit for Storm Water Discharges Associated with Construction And Land Disturbance Activities, (Order 2009-0009-DWQ, NPDES No CAS000002) to this General Permit for long-term construction related activities that are similar to industrial activities (e.g. concrete batch plants).

40 Code of Federal Regulations section 122.26(b)(14) defines "storm water discharge associated with industrial activity" and describes the types of facilities subject to permitting (primarily by Standard Industrial Classification (SIC) code). This General Permit provides regulatory coverage for all facilities with industrial activities described in Attachment A where the covered industrial activity is the Discharger's primary industrial activity. In some instances, a Discharger may have more than one primary industrial activity occurring at a facility.

The 1987 SIC manual uses the term "establishment" to determine the primary economic activity of a facility. The manual instructs that where distinct and separate economic activities are performed at a single location, each activity should be treated as a separate establishment (and, therefore, separate primary activity). For example, the United States Navy (primary SIC code 9711) may conduct industrial activities subject to permitting under this General Permit, such as landfill operations (SIC code 4953), ship and boat building and repair (SIC code 3731, and flying field operations (SIC code 4581).

The SIC manual also discusses "auxiliary" functions of establishments. Auxiliary functions provide management or support services to the establishment. Examples of auxiliary functions are warehouses and storage facilities for the establishment's own materials, maintenance and repair shops of the establishment's own machinery, automotive repair shops or storage garages of the establishment's own vehicles, administrative offices, research, development, field engineering support, and testing conducted for the establishment. When auxiliary functions are performed at physically separate facilities from the establishment they serve, they generally are not subject to General Permit coverage. If

auxiliary functions are performed at the same physical location as the establishment, then they are subject to General Permit coverage if they are associated with industrial activities.

This clarification does not change the scope of which facilities are subject to permitting relative to the 1997 IGP. The 1997 IGP Fact Sheet had used the term “auxiliary” to describe a facility’s separate primary activities, which has caused confusion.

In 1997, the North American Industrial Classification System (NAICS) was published, replacing the SIC code system. The U.S. EPA has indicated that it intends to incorporate the NAICS codes into the federal storm water regulations but has not done so yet. The State Water Board recognizes that many Dischargers in newer industries were not included in the 1987 SIC code manual and may have difficulty determining their SIC code information. To address this transition, SMARTS has been modified to accept both SIC codes and NAICS codes, and NAICS codes are automatically translated into SIC codes. There may be instances of conflict between SIC and NAICS codes. The use of NAICS codes shall not expand or reduce the types of industries subject to this General Permit as compared to the SIC codes listed in the General Permit. State Water Board staff will work closely with the applicant to resolve these conflicts in SMARTS as they are identified. Dischargers should be aware that the use of an NAICS code which results in failure to submit any of the required PRDs under this General Permit remains a violation of the terms of this General Permit.

The facilities included in category one of Attachment A (facilities subject to Subchapter N) are subject to storm water ELGs that are incorporated into the requirements of this General Permit. Dischargers whose facilities are included in this category must examine the appropriate federal ELGs to determine the applicability of those guidelines. This General Permit contains additional requirements (Section XI.D) that apply only to facilities with storm water ELGs.

2. Types of Discharges Not Covered by this General Permit

- a. Discharges from construction and land disturbance activities that are subject to the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).
- b. Discharges covered by an individual or general storm water NPDES permit. Some industrial storm water discharges may be regulated by other individual or general NPDES permits issued by the State Water Board or the Regional Water Boards (Water Boards, collectively,). This General Permit shall not regulate these discharges. When the individual or general NPDES permits for such discharges expire, the Water Boards may authorize coverage under this General Permit or another general NPDES permit, or may issue a new individual NPDES permit consistent with the federal and state storm water regulations. Interested parties may request that the State Water Board or appropriate Regional Water Board issue individual or general NPDES permits for specific discharges that, in their view are not properly regulated through this General Permit. General permits may be issued for a particular industrial group or watershed area which

would supersede this General Permit. To date, two Regional Water Board have issued such permits:

- i. The Lahontan Regional Water Board has adopted an NPDES permit and general Waste Discharge Requirements to regulate discharges from marinas and maintenance dredging (Regional Water Board Order R6T-2005-0015 - NPDES Permit No. CAG616003) in the Lake Tahoe Hydrologic Unit.
 - ii. The Santa Ana Regional Water Board adopted the Sector Specific General Permit for Stormwater Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order R8-2012-0012, NPDES Permit No. CAG 618001 (Scrap Metal Recycling Permit). The Scrap Metal Recycling Permit is applicable to facilities within the Santa Ana Region that are listed under Standard Industrial Classification (SIC) Code 5093 and engaged in the following types of activities: (1) automotive wrecking for scrap-wholesale (this category does not include facilities engaged in automobile dismantling for the primary purpose of selling second hand parts); (2) iron and steel scrap - wholesale; (3) junk and scrap metal - wholesale; (4) metal waste and scrap - wholesale; and (5) non-ferrous metals scrap - wholesale. Other types of facilities listed under SIC Code 5093 and engaged in waste recycling are not required to get coverage under the Scrap Metal Recycling Permit. A list of covered facilities as of February 8, 2011 was included in Attachment A of the Scrap Metal Recycling Permit.
- c. Discharges that the Regional Water Boards determine to be ineligible for coverage under this General Permit. In such cases, a Regional Water Board will require the discharges be covered by another individual or general NPDES permit. The applicability of this General Permit to such discharges is terminated when the discharge is subject to another individual or general NPDES permit.
- d. Discharges that do not enter waters of the United States. These include:
- i. Discharges to municipal separate sanitary sewer systems;
 - ii. Discharges to evaporation ponds, discharges to percolation ponds, and/or any other methods used to retain and prevent industrial storm water discharges from entering waters of the United States;
 - iii. Discharges to combined sewer systems. In California, the only major combined sewer systems are located in San Francisco and downtown Sacramento. Dischargers who believe they discharge into a combined sewer system should contact the local Regional Water Board to verify discharge location; and,
 - iv. Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability (NONA) (Fact Sheet Section II.S).
- e. Discharges from mining operations or oil and gas facilities composed entirely of flows that are from conveyances or systems of conveyances used for collecting and conveying precipitation runoff and do not come into contact with any overburden, raw materials, intermediate products, finished products, by-products, or waste products located at the facility. (33 U.S.C. § 1342(l)(2).)
- f. Discharges from facilities on Tribal Lands regulated by U.S. EPA.

3. Obtaining General Permit Coverage (Section II of this General Permit)

The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <https://smarts.waterboards.ca.gov>. The State Water Board has determined that all documents related to general storm water enrollment and compliance must be certified and submitted via SMARTS by Dischargers.

This General Permit requires all Dischargers to electronically certify and submit PRDs via SMARTS to obtain: (1) regulatory coverage, or (2) to certify that there are no industrial activities exposed to storm water at the facility and obtain regulatory coverage under the NEC provision of this General Permit. Facilities that were eligible to self-certify no exposure under the previous permit (see category 10 in Attachment 1 of the previous permit) are required to certify and submit via SMARTS PRDs for NOI coverage under this General Permit by July 1, 2015 or for NEC coverage by October 1, 2015. The Water Board is estimating that 10,000 – 30,000 Dischargers may be registering for NOI or NEC coverage under this General Permit. Separate registration deadlines, one for NOI coverage and one for NEC coverage, provides Dischargers better assistance from Storm Water Helpdesk and staff.

Dischargers shall electronically certify and submit the PRDs via SMARTS for each individual facility. This requirement is intended to establish a clear accounting of the name, address, and contact information for each Discharger, as well as a description of each Discharger's facility.

The Water Boards recognize that certain information pertaining to an industrial facility may be confidential. Many Stakeholders were asking for clarification on the process the Water Boards would use to manage confidential information or the process Dischargers could use to redact such information. Dischargers may redact trade secrets information from required submittals (Section II.B.3.d). Dischargers are required to include a general description of the redacted information and the basis for the redaction. Dischargers are still required to submit complete and un-redacted versions of the information to the Water Boards within 30 days, however these versions should be clearly labeled "CONFIDENTIAL" so that the confidentiality of these documents is clear to Regional Water Board staff, even when there is a change in staff. This General Permit requires that all information provided to the Water Boards by the Discharger comply with the Homeland Security Act and other federal law that addresses security in the United States.

All Dischargers who certify and submit PRDs via SMARTS for NOI coverage on or after July 1, 2015 or for NEC coverage on or after October 1, 2015, shall immediately comply with the provisions in this General Permit.

4. General Permit Coverage for Landfills

This General Permit covers storm water discharges from landfills, land application sites, and open dumps that receive or have received industrial waste from any facility covered by this General Permit. Industrial storm water discharges from these

facilities must be covered by this General Permit unless (1) they are already covered by another NPDES permit, or (2) the Regional Water Board has determined that an NPDES permit is not required because the site has been stabilized or required closure activities have been completed.

In most cases, it is appropriate for new landfill construction or final closure to be covered by the Construction General Permit, rather than this General Permit. Questions have arisen as to what constitutes new landfill construction at an existing landfill versus the normal planned expansion of a landfill. Similarly, questions have arisen about the type of closure activities that may be subject to the Construction General Permit versus the normal closure of “cells” that occurs during continued landfill operations and are not subject to the Construction General Permit. Other questions such as whether temporary or permanent newly graded/paved roads disturbing greater than one acre at a landfill are subject to the Construction General Permit. Landfill Dischargers have asked for clarity regarding these questions. The previous permit required Dischargers to contact the Regional Water Boards to determine permit appropriateness. Site specific circumstances continue to require Dischargers to contact Regional Water Boards for final determinations.

Based upon the State Water Board’s storm water program history, there are only a handful of instances where an operating landfill has been simultaneously subject to both the construction and industrial permitting requirements. Typically a landfill is subject to the construction permitting requirements during the time the landfill is initially constructed and prior to operation. A landfill is subject to the industrial permitting requirements during landfill operations, and subject to the construction permitting requirements during final landfill closure activities.

Once a landfill begins operations, continued expansion or closure of incremental landfill cells is authorized under the industrial permitting requirements since these are normal aspects of landfill operations. These expansion/closure activities occur within a limited timeframe (often taking less than 90 days from beginning to end) and are not separately subject to additional local approval (e.g., a new building permit). Any construction or demolition of temporary non-impervious roads directly related to landfill operations are subject to the industrial permitting requirements.

Construction or closure of a separate section of the landfill that is either subject to additional permitting by the local authorities and/or lasts more than 90 days requires coverage under the Construction General Permit. Construction of permanent facility structures such as buildings and impervious parking lots or roads that disturb greater than one acre are also subject to the Construction General Permit. (Permanent facility structures are defined as any structural improvements designed to remain until the landfill is closed.)

Site specific circumstances such as proximity to nearby waterways, extent of activities, pollutants of concern, and other considerations can impact any decision as to whether a particular activity is to be regulated under this General Permit or the Construction General Permit. Regional Water Boards will continue to exercise their discretion as necessary to protect the beneficial uses of the receiving water(s).

5. General Permit Coverage for Small Municipal Separate Storm Sewer Systems (MS4s)

Section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 exempted municipal agencies serving populations of less than 100,000 from Phase I permit requirements other than sanitary landfills, power plants, and airports facilities. U.S. EPA's Phase II regulations eliminated the above exemption as of March 10, 2003. All facilities in Attachment A of this General Permit that are operated by a small municipal agency are subject to NPDES storm water permitting requirements and this General Permit.

6. Changes to General Permit Coverage

Dischargers who no longer operate a facility required to be covered under this General Permit (either NOI or NEC coverage) are required to electronically certify and submit via SMARTS a Notice of Termination (NOT). An NOT is required when there is a change in ownership of the industrial activities subject to permitting or when industrial activities subject to permitting are permanently discontinued by the Discharger at the site. When terminating NOI coverage, Dischargers may only submit an NOT once all exposure of industrial materials and equipment have been eliminated. Dischargers may not submit NOTs for temporary or seasonal facility closures. The General Permit requires Dischargers to implement appropriate BMPs to reduce or prevent pollutants in storm water discharges during the temporary facility closure.

This General Permit allows Dischargers to change General Permit coverage, as appropriate, from NOI coverage to NEC coverage or from NEC coverage to NOI coverage.

B. Discharge Prohibitions

This General Permit covers industrial storm water discharges and authorized NSWDs from industrial facilities and prohibits any discharge of materials other than storm water and authorized NSWDs (Section III and Section IV of this General Permit). It is a violation of this General Permit to discharge hazardous substances in storm water in excess of the reportable quantities established in 40 Code of Federal Regulations sections 117.3 and 302.4.

The State Water Board is authorized, under Water Code section 13377, to issue NPDES permits which apply and ensure compliance with all applicable provisions of the CWA, and any more stringent limitations necessary to implement water quality control plans, protect beneficial uses, and prevent nuisance.

C. Non-Storm Water Discharges (NSWDs)

Unauthorized NSWDs can be generated from various pollutant sources. Depending upon their quantity and location where generated, unauthorized NSWDs can discharge to the storm drain system during dry weather as well as during a storm event (comingled with storm water discharge). These NSWDs can consist of, but are not limited to; (1) waters generated by the rinsing or washing of vehicles, equipment,

buildings, or pavement, or (2) fluid, particulate or solid materials that have spilled, leaked, or been disposed of improperly.

Some NSWDs are not directly related to industrial activities and normally discharge minimal pollutants when properly managed. Section IV of this General Permit provides a limited list of NSWDs that are authorized if Dischargers implement BMPs to prevent contact with industrial materials prior to discharge. The list in Section IV is similar to the list provided in the 2008 MSGP but does not include pavement and external building surfaces washing without detergents. These two items are not included because the Discharger is responsible to reduce or prevent pollutants in storm water discharges from paved areas and buildings associated with industrial activities. Since industrial materials and non-industrial material likely co-exist, the washing of paved areas and external building surfaces may result in discharges of pollutants associated with industrial activities. In addition, washing activities generally occur during dry-weather periods when receiving water flows are lower than wet-weather periods. Wash waters are likely to discharge in higher concentrations than would occur if these pollutants were naturally discharged during a storm event. The discharge of high concentration wash water during a time of dry-weather flows is inconsistent with the goal of protecting receiving waters. These discharges are, therefore, considered unauthorized NSWDs. Similar to the 2008 MSGP, firefighting related discharges are not subject to this General Permit.

A major required element of the SWPPP is the identification and measures for elimination of unauthorized NSWDs. Unauthorized NSWDs can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. This General Permit's BMP requirements for NSWDs remain essentially unchanged from the previous permit other than the increased frequency of required visual observations from quarterly to monthly. See Section XI.A.1 of this General Permit.

D. Effluent Limitations

1. Technology-Based and Water Quality-Based Effluent Limitations

CWA Section 301(b)(1)(C) requires that discharges from existing facilities must, at a minimum, comply with technology-based effluent limitations based on the technological capability of Dischargers to control pollutants in their discharges. Discharges must also comply with any more stringent water quality-based limitations necessary to meet water quality standards in accordance with CWA Section 301(b)(1)(C). Water quality-based limitations are discussed in Section E of this Fact Sheet titled "Receiving Water Limitations." Both technology-based effluent limitations and water quality-based limitations are implemented through NPDES permits. (CWA sections 301(a) and (b).)

2. Types of Technology-Based Effluent Limitations

All NPDES permits are required to contain technology-based effluent limitations (TBELs). (40 C.F.R. §§122.44(a)(1) and 125.3.) TBELs may consist of effluent limitations guidelines (ELGs) established by U.S. EPA through regulation, or may be developed using best professional judgment on a case-by-case basis.

The CWA sets forth standards for TBELs based on the type of pollutant or the type of facility/source involved. The CWA establishes two levels of pollution control for existing sources. For the first level, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the “best practicable control technology currently available” (BPT). (33 U.S.C. § 1314(b)(1)(B).) BPT applies to all pollutants. For the second level, existing sources that discharge conventional pollutants are subject to effluent limitations based on the “best conventional pollutant control technology” (BCT). (33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants).) Also for the second level, other existing sources that discharge toxic pollutants or “nonconventional” pollutants (“nonconventional” pollutants are pollutants that are neither “toxic” nor “conventional”) are subject to effluent limitations based on “best available technology economically achievable” (BAT). (33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).) The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and in U.S. EPA’s regulations at 40 C.F.R. §125.3.

When establishing ELGs for an industrial category, U.S. EPA evaluates a wide variety of technical factors to determine BPT, BCT, and BAT. U.S. EPA considers the specific factors of an industry such as pollutant sources, industrial processes, and the size and scale of operations. U.S. EPA evaluates the specific treatment, structural, and operational source control BMPs available to reduce or prevent pollutants in the discharges. The costs of implementing BMPs to address these factors are weighed against their effectiveness and ability to protect water quality. Factors such as industry economic viability, economies of scale, and retrofit costs are also considered.

To date, U.S. EPA has: (1) not promulgated storm water ELGs for most industrial categories, (2) not established NELs within all ELGs that have been promulgated, and (3) exempted certain types of facilities within an industrial category from complying with established ELGs. The feedlot category (40 Code of Federal Regulations part 412) provides an example of several of these points. In that instance, U.S. EPA did not establish numeric effluent limitations but instead: (1) established a narrative effluent limitation requiring retention of all feedlot-related runoff from a 25-year, 24-hour storm, and (2) limited application of the ELG to feedlots with a minimum number of animals. U.S. EPA also recently promulgated ELGs for the "Construction and Development (C&D)" industry, which included, among many other limitations, conditional numeric effluent limitations. Though the NELs in these ELGs were later stayed by U.S. EPA, the ELGs exempted construction sites of less than 30 acres from complying with the established numeric effluent limitations.

40 Code of Federal Regulations, Chapter I, Subchapter N (“Subchapter N”), includes over 40 separate industrial categories where the U.S. EPA has established ELGs for new and existing industrial wastewater discharges to surface waters, discharges to publicly owned treatment works (pre-treatment standards), and storm water discharges to surface waters. Generally, U.S. EPA has focused its efforts on the development of ELGs for larger industries and those industries with the greatest potential to pollute. In total, the 40 categories for which ELGs have been

established (not including construction) represent less than 10 percent of the types of facilities subject to this General Permit. Additionally, most ELGs focus on industrial process wastewater discharges and pre-treatment standards, and only 11 of the 40 categories establish numeric or narrative ELGs for industrial storm water discharges. Those that do include ELGs for industrial storm water discharges generally address storm water discharges that are generated from direct contact with primary pollutant sources at the subject facilities, and not the totality of the industrial storm water discharge from the facility, as the term “storm water discharge associated with industrial activity” for this General Order is defined in the CWA. (40 C.F.R. § 122.26(b)(14).) Where U.S. EPA has not issued effluent limitation guidelines for an industry, the State Water Board is required to establish effluent limitations for NPDES permits on a case-by-case basis based on best professional judgment (BPJ). (33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).) In this General Permit, most of the TBELs are based on BPJ decision-making because no ELG applies.

The TBELs in this General Permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional pollutants) levels of control for the applicable pollutants. If U.S. EPA has not promulgated ELGs for an industry, or if a Discharger is discharging a pollutant not covered by the otherwise applicable ELG, the State Water Board is required to establish effluent limitations in NPDES permit limitations based on best professional judgment. (33 U.S.C. § 1342(a)(1); 40 C.F.R. 125.3(c).) This General Permit includes TBELs established on best professional judgment and limitations based on storm water-specific ELGs listed in Attachment F of this General Permit, where applicable.

3. Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits

TBELs in this General Permit are based on best professional judgment and are non-numeric (“narrative”) technology-based effluent limitations expressed as requirements for implementation of effective BMPs. Federal regulations provide that permits must include BMPs to control or abate the discharge of pollutants when where “[n]umeric effluent limitations are infeasible.” 40 C.F.R. 122.44(k)(3).

Since 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., BMPs) designed to reduce the level of effluent discharges to acceptable levels. *Natural Res. Def. Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

U.S. EPA has also interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), titled “Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...),” provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) “[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges”; or (2) “[n]umeric effluent limitations are infeasible.” 40 C.F.R. § 122.44(k).

In 2006, The U.S. Court of Appeals for the Sixth Circuit held that the CWA does not require U.S. EPA to set numeric limits where such limits are infeasible. (*Citizens Coal Council v. United States Environmental Protection Agency*, 447 F.3d 879, 895-96 (6th Cir. 2006)). The *Citizens Coal* court cited to the statement in *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005) that “site-specific BMPs are effluent limitations under the CWA” in concluding that “the EPA’s inclusion of numeric and non-numeric limitations in the guideline for the coal remaining subcategory was a reasonable exercise of its authority under the CWA.” (447 F.3d at 896.) Additionally, the *Citizen’s Coal* court cited to *Natural Res. Def. Council, Inc. v. EPA*, 673 F.2d 400, 403 (D.C.Cir.1982) noting that “section 502(11) [of the CWA] defines ‘effluent limitation’ as ‘any restriction’ on the amounts of pollutants discharged, not just a numerical restriction.” NPDES permit writers have substantial discretion to impose non-quantitative permit requirements pursuant to section 402(a)(1)), especially when the use of numeric limits is infeasible. (*NRDC v. EPA*, 822 F.2d 104, 122-24 (D.C. Cir. 1987); 40 C.F.R. 122.44(k)(3).)

4. Decision to Include Non-Numeric Technology-Based Effluent Limits in This General Permit

It is infeasible for the State Water Board to develop numeric effluent limitations using the best professional judgment approach due to lack of sufficient information. Previous versions of this General Permit required Dischargers to sample their industrial storm water discharges and report the results to the Regional Water Boards. Dischargers were not required to submit this data online into a statewide database; as a result, much of this data is not available for analysis. Moreover, much of the data that are available for analysis are not of sufficient quality to make conclusions or perform basic statistical tests.

The Blue Ribbon Panel of Experts, State Water Board staff, and many stakeholders evaluated the available storm water data set and concluded that the information provides limited value due to the limited pool of industrial facilities submitting data, poor overall data quality, and extreme variance within the dataset, as described below.

The poor quality of the existing data set is attributable a number of factors. For example, the previous permits have required Dischargers to sample during the first hour of discharge from two storm events a year. This sampling schedule was designed to catch what was considered to represent the higher end of storm water discharge concentrations for most parameters. The results from this type of sampling were thought to be an indicator of whether or not additional BMPs would be necessary. The sampling schedule was not designed, however, to estimate pollutant discharge loading, or to characterize the impact of the discharge on the receiving water. Doing so would normally require the use of more advanced sampling protocols such as flow meters, continuous automatic sampling devices, certified/trained sampling personnel, and other facility-specific considerations.

Furthermore, there is currently no data which details the relationship between the BMPs implemented at each facility and the facility’s sampling results. The SWPPPs required by the previous permits were not submitted to the Water Boards, but were

kept onsite by Dischargers. Due to the limited availability of quality sampling data and "level of effort" information contained in SWPPPs, the State Water Board is unable to exercise best professional judgment to make the connection between effluent quality (sampling results) and the level of effort, costs, and performance of the various technologies that is needed in order to express the TBELs in this General Permit numerically, as NELs.

Some stakeholders have suggested that separating the data sets by industry type would lead to more reliable data with which to develop NELs. Advocates of this approach suggest that the variability of the data may be caused in part by the mixing of data from different industrial categories. The State Water Board believes that the variation is primarily due to storm intensity, duration, time of year, soil saturation or some other factors. It is necessary to collect information related to those factors and BMPs implemented in order to evaluate the variability attributable to those factors. There is currently too large of an information gap to begin the process of developing NELs for all industrial sectors not currently subject to ELGs.

The State Water Board has proposed NELs in past drafts of this General Permit. In comments, many stakeholders have highlighted the difficulty of developing statewide NELs that are applicable to all industry sectors, or even NELs that cover any specific industry sectors. For example, stakeholders have commented that:

- a. Background/ambient conditions in some hydrogeologic zones may contribute pollutant loadings that would significantly contribute to, if not exceed, the NEL values;
- b. Some advanced treatment technologies have flow/volume limitations as well as economy of scale issues for smaller facilities;
- c. Treatment technologies that require that sheet flows be captured and conveyed via discrete channels or basins may not only result in significant retrofit costs, but may conflict with local ordinances that prohibit such practices, as they can cause damage or erosion to down gradient property owners, or cause other environmental problems;
- d. There is insufficient regulatory guidance and procedures to allow permit writers to properly specify monitoring frequency and sampling protocols (e.g., instantaneous maximum, 1-day average, 3-day average, etc.), and for Dischargers to obtain representative samples to compare to NELs for the purpose of strict compliance; and,
- e. NELs must be developed with consideration of what is economically achievable for each industrial sector. These stakeholders point out that the U.S. EPA goes to great lengths evaluating the various BMP technologies available for a particular pollutant, the costs and efficiency of each BMP, and the applicability of the BMPs to the industry as a whole or to a limited number of industrial sites based upon the size of the facility, the quantity of material, and other considerations.

The State Water Board does not have the information (including monitoring data, industry specific information, BMP performance analyses, water quality information, monitoring guidelines, and information on costs and overall effectiveness of control technologies) necessary to promulgate NELs at the time of adoption of this General Permit. Therefore, it is infeasible to include NELs in this statewide General Permit.

Many of the new requirements in this General Permit have been designed to address the shortcomings of previous permits and the existing storm water data set. Under this General Permit, sampling results must be certified and submitted into SMARTS by Dischargers, along with SWPPPs which outline the technologies and BMPs used to control pollutants at each facility. The ERA process will also collect information on costs and the engineering aspects of the various control technologies employed by each facility. Previous permit versions did not have a mechanism for receiving this site specific information electronically, and only a small percentage of Dischargers submitted their Annual Reports via SMARTS. This General Permit will make this information more accessible, allowing the Water Boards to evaluate the relationship between BMPs and the ability of facilities to meet the NALs set forth in this General Permit. Finally, the new Qualified Industrial Storm Water Practitioner (QISP) training requirements of this General Permit have been designed in part to improve the quality of the data submitted.

5. Narrative Technology-Based Effluent Limitations (TBELs) and Best Management Practices (BMPs)

The primary TBEL in this General Permit requires Dischargers to “implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.” (Section V.A of this General Permit). This TBEL is a restatement of the BAT/BCT standard, as articulated by U.S. EPA in the 2008 MSGP and accompanying Fact Sheet. In order to comply with this TBEL, Dischargers must implement BMPs that meet or exceed the BAT/BCT technology-based standard. The requirement to “reduce or prevent” is equivalent to the requirement in the federal regulations that BMPs be used in lieu of NELs to “control or abate” the discharge of pollutants. (40 C.F.R. § 122.44(k).)

BMPs are defined as the “scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to reduce or prevent the discharge of pollutants... includ[ing] treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.” (40 C.F.R. § 122.2.)

This General Permit (Sections X.H.1 and X.H.2) requires all Dischargers to implement minimum BMPs, as well as any advanced BMPs that are necessary to adequately reduce or prevent pollutants in discharges consistent with the TBELs. The minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities. This General Permit generally does not mandate the specific mode of design, installation or implementation for the minimum BMPs at a Discharger’s facility. It is up to the Discharger, in the first instance, to

determine what must be done to meet the applicable effluent limits. For example, Section X.H.1.a.vi of this General Permit requires Dischargers to contain all stored non-solid industrial materials that can be transported or dispersed via wind or contact with storm water. How this is achieved will vary by facility: for some facilities, all activities may be moved indoors, while for others this will not be feasible. However, even for the latter, many activities may be moved indoors, others may be contained using tarps or a containment system, while still other activities may be limited to times when exposure to precipitation is not likely. Each of these control measures is acceptable and appropriate depending upon the facility-specific circumstances.

BMPs can be actions (including processes, procedures, schedules of activities, prohibitions on practices and other management practices), or structural or installed devices to reduce or prevent water pollution. (40 C.F.R. § 122.2.) They can be just about anything that is effective at preventing pollutants from entering the environment, and for meeting applicable limits of this General Permit. In this General Permit, Dischargers are required to select, design, install, and implement facility-specific control measures to meet these limits. Many industrial facilities already have such control measures in place for product loss prevention, accident and fire prevention, worker health and safety or to comply with other environmental regulations. Dischargers must tailor the BMPs detailed in this General Permit to their facilities, as well as improve upon them as necessary to meet permit limits. The examples detailed in this Fact Sheet emphasize prevention over treatment. However, sometimes more traditional end-of-pipe treatment may be necessary, particularly where a facility might otherwise cause or contribute to an exceedance of water quality standards.

This General Permit requires Dischargers to implement BMPs “to the extent feasible.” Consistent with the control level requirements of the CWA, for the purposes of this General Permit, the requirement to implement BMPs “to the extent feasible” means to reduce and/or prevent discharges of pollutants using BMPs that represent BAT and BPT in light of best industry practice.⁴ In other words, Dischargers are required to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering their technological availability and economic practicability and achievability.

To determine technological availability and economic practicability and achievability, Dischargers need to consider what control measures are considered “best” for their industry, and then select and design control measures for their site that are viable in terms of cost and technology. The State Water Board believes that for many facilities minimization of pollutants in storm water discharges can be achieved without using highly engineered, complex treatment systems. The BMPs included in

⁴ Because toxic and nonconventional pollutants are controlled in the first step by BPT and in the second step by BAT, and the second level of control is “increasingly stringent” (EPA v. National Crushed Stone, 449 U.S. 64, 69 (1980), for simplicity of discussion, the rest of this discussion will focus on BAT. Similarly, because the BAT levels of control in this General Permit are expressed as BMPs and pollution prevention measures, they will also control conventional pollutants. Therefore this discussion will focus on BAT rather than BCT or BPT for conventional pollutants.

this General Permit emphasize effective “low-tech” controls, such as regular cleaning of outdoor areas where industrial activities may take place, proper maintenance of equipment, diversion of storm water around areas where pollutants may be picked up, and effective advanced planning and training (e.g., for spill prevention and response).

E. Receiving Water Limitations and Water Quality Standards

Pursuant to CWA section 301(b)(1)(C) and Water Code section 13377, this General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges not cause or contribute to an exceedance of applicable water quality standards. Implementation of the BMPs as required by the technology-based effluent limitation in Section V of this General Permit will typically result in compliance with the receiving water limitations. The discussion of BMPs in this General Permit generally focuses on requiring implementation of BMPs to the extent necessary to achieve compliance with the technology-based effluent limitations, because the technology-based limitations apply similarly to all facilities. In addition, however, this General Permit also makes it clear that, if any individual facility's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures that are tailored to that facility in order to attain compliance with the receiving water limitation. A Discharger that is notified by a Regional Water Board or who determines the discharge is causing or contributing to an exceedance of a water quality standard must comply with the Water Quality Based Corrective Actions found in Section XX.B of this General Permit.

Water Quality Based Corrective Actions are different from the Level 1 and Level 2 ERAs that result from effluent-based monitoring. It is possible for a Discharger to be engaged in Level 1 or Level 2 ERAs for one or more pollutants and simultaneously be required to perform Water Quality Based Corrective Actions for one or more other pollutants.

Failure to comply with these additional Water Quality Based Corrective Action requirements is a violation of this General Permit. If additional operational source control measures do not adequately reduce the pollutants, Dischargers must implement additional measures such as the construction of treatment systems and/or overhead coverage. Overhead coverage is any structure or temporary shelter that prevents the vertical contact of precipitation with industrial materials or activities. If the Regional Water Board determines that the Discharger's selected BMPs are inadequate, the Regional Water Board may require implementation of additional BMPs and/or may take enforcement against Dischargers for failure to comply with this General Permit.

F. Total Maximum Daily Loads (TMDLs)

TMDLs are regulatory tools that provide the maximum amount of a pollutant from potential source in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2, subd. (i).) Discharges covered by this General Permit are considered to be point

source discharges, and therefore must comply with effluent limitations that are “consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 Code of Federal Regulations section 130.7.” (40 C.F.R. § 122.44, subd. (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocations and implementation requirements. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include TMDL requirements for Dischargers covered by this General Permit.

NPDES-regulated storm water discharges (which include industrial storm water) must be addressed by waste load allocations in TMDLs. (40 C.F.R. § 130.2(h).) NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the waste load allocations in TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).) To date, the relevant waste load allocations assigned to industrial storm water discharges are not directly translatable to effluent limitations. Many of the TMDLs lack sufficient facility specific information, discharge characterization data, implementation requirements, and compliance monitoring requirements. Accordingly, an analysis of each TMDL applicable to industrial storm water discharges must be performed to determine if it is appropriate to translate the waste load allocation into a numeric effluent limit, or if the effluent limit is to be expressed narratively using a BMP approach. U.S. EPA recognizes that because storm water discharges are highly variable in frequency and duration and are not easily characterized, it is often not feasible or appropriate to establish numeric limits. Variability and the lack of data available make it difficult to determine with precision or certainty actual and projected loadings for individual Dischargers or groups of Dischargers.

Regardless of whether the effluent limit is to be numeric or narrative, the existing waste load allocations must be carefully analyzed, and in many cases translated, to determine the appropriate effluent limitations. Issues of interpretation exist with all of the waste load allocations applicable to Dischargers, and these issues vary based on the TMDL. Below is an example of one of the simpler issues:

FIGURE 1: Example Waste Load Allocations Proposed Translation: Ballona Creek Estuary – Toxic Pollutants

Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (grams/year/acre)				
Cadmium	Copper	Lead	Silver	Zinc
0.1	3	4	0.1	13
Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (milligrams/year/acre)				
Chlordane	DDTs	Total Polychlorinated biphenyl (PCBs)	Total Polycyclic aromatic hydrocarbons (PAHs)	
0.04	0.14	2	350	

In order for the above waste load allocations to effectively be implemented as effluent limits under the General Permit, the Water Boards must (1) identify which discharges the waste load allocations apply to, (2) identify the acreages of the individual facilities, (3) convert the waste load allocations from grams/year/acre (or milligrams/year/acre) to grams/year (or milligrams/year) based on the acreage at each identified facility, (4) assign the effluent limits to the identified Dischargers, (5) determine appropriate monitoring to assess compliance with the effluent limits, and (6) develop a tracking mechanism for each identified facility and their individual effluent limits. A similar stepwise process is necessary for each TMDL with waste load allocations assigned to industrial storm water discharges. For TMDLs where effluent limits will be expressed as BMPs, analysis must be performed to determine the appropriate BMPs and the corresponding effectiveness to comply with the assigned waste load allocations.

Some waste load allocations are already expressed as concentration based numbers. It may appear simple to incorporate these values into this General Permit as effluent limits, but the questions still remain regarding how to determine compliance. The monitoring requirements in this General Permit are not designed to measure compliance with a numeric effluent limit or to measure the effect of a discharge on a receiving water body. (See the discussion on monitoring requirements in Fact Sheet Section II.J.) This General Permit requires sampling of four (4) storm events a year, with certain limitations as to when a discharge may be sampled. This method of monitoring may not appropriately serve as TMDL compliance sampling since grab samples are only representative of the particular moment in time when the sample was taken. Since storm water is highly variable, four grab samples per year may not provide sufficient confidence that the effluent limit is being met. An alternative monitoring scheme may be necessary to determine the facility's impact on the receiving water and to determine compliance with any assigned effluent limits. Questions concerning whether sampling results should be grab samples, composite samples, flow-weighted averaged over all drainage areas, etc. cannot be determined for each concentration-based TMDL without a more thorough analysis.

Additionally, monitoring and assessment requirements must be developed for all of the TMDLs to determine compliance with or progress towards meeting TMDL requirements. The proposed monitoring requirements in this General Permit are not designed to assess pollutant loading or determine compliance with TMDL-specific effluent limits.

Due to the large number and variety of discharges subject to a wide range of TMDLs statewide, to prevent a severe delay in the adoption of this General Permit, TMDL-specific permit requirements for the TMDLs listed in Attachment E will be proposed by the Regional Water Boards. Since the waste load allocations and/or implementation requirements apply to multiple discharges in the region(s) the TMDL were developed, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level. The development of TMDL-specific permit requirements is subject to notice and a public comment period prior to incorporation into this General Permit.

Regional Water Board staff, with the assistance of State Water Board staff, will develop and submit the proposed TMDL-specific permit requirements for each of the TMDLs listed in Attachment E by July 1, 2016.⁵ After conducting a 30-day public comment period, the Regional Water Boards will propose TMDL-specific permit requirements to the State Water Board for adoption into this General Permit. The Regional Water Boards may also include TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The Regional Water Boards or their Executive Officers may complete these tasks, and the proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Unless directed to do so by the Regional Water Board, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements. This approach is consistent with the 2008 MSGP. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards.

The Regional Water Boards will submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

- Proposed TMDL-specific permit requirements, including any applicable effluent limitations, implementation timelines, additional monitoring requirements, reporting requirements, an explanation of how an exceedance of an effluent limitation or a violation of the TMDL will be determined, and required deliverables consistent with the TMDL(s);
- An explanation of how the proposed TMDL-specific permit requirements, timelines, and deliverables are consistent with the assumptions and requirements of applicable waste load allocation(s) to implement the TMDL(s);
- Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations; and
- Where concentration-based monitoring is required, an explanation of how the required monitoring, reporting and calculation methodology for an exceedance of an effluent limitation or a violation of the TMDL(s) will be sufficient to demonstrate compliance with the TMDL(s).

Upon receipt of the information described above, the State Water Board will conduct a public comment period and reopen this General Permit to populate Attachment E, the Fact Sheet, and other provisions as necessary in order to incorporate these TMDL-specific permit requirements into this General Permit. Attachment E may also be reopened during the term of this General Permit to add additional TMDLs and corresponding implementation requirements.

This General Permit (Section X.G.2.a.ix) requires a Discharger to identify any additional industrial parameters that may be discharged to a waterbody with a 303(d) impairment identified in Appendix 3 as likely to be associated with industrial storm water.

⁵ Due to the workload associated with the implementation of this General Permit (e.g., training program development, NEC outreach, electronic enrollment and reporting via SMARTS) it is believed that two years is necessary for Staff to complete a comprehensive analysis and stakeholder process for TMDLs applicable to Dischargers under this General Permit.

Dischargers may need to implement additional monitoring for any applicable parameters (Section XI.B.6.e). Appendix 3 of this General Permit includes the water bodies with 303(d) impairments or TMDLs for pollutants that are likely to be associated with industrial storm water in black font, and those that are not likely to be associated with industrial storm water in red font. This determination is based on the pollutant or pollutants that are causing each impairment, and the State Water Board's general experience regarding the types of pollutants that are typically found in industrial storm water discharges. The list of waterbodies is from the State Water Boards statewide 2010 Integrated CWA Section 303(d) List / Section 305(b) Report.

Some of the water bodies with 303(d) impairments or TMDLs listed in Appendix 3 of this General Permit are not applicable to Dischargers covered under this General Permit. Appendix 3 indicates these water bodies Dischargers are not required to include in their pollutant source assessment (unless directed to do so by the Regional Water Board).

New Dischargers (as defined in Attachment C) applying for NOI coverage under this General Permit that will be discharging to an impaired water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that the facility will not cause or contribute to the impairment. Section VII.B of this General Permit describes the three different options New Dischargers have for making this determination. This General Permit requires a QISP to assist the New Discharger with this determination because individuals making this determination will need expertise in industrial storm water pollutant sources, BMPs and a thorough understanding of complying with U.S. EPA's storm water regulations and this General Permit's requirements. Not requiring New Dischargers to have a QISP assist in this demonstration would possibly lead to costly retrofits or closure of a new facility that has not demonstrated that the facility will not cause or contribute to the impairment.

G. Discharges Subject to the California Ocean Plan

1. Discharges to Ocean Waters

On October 16, 2012 the State Water Board amended the California Ocean Plan (California Ocean Plan) to require industrial storm water Dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances (California Ocean Plan, Appendix III). The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

This General Permit requires dischargers with outfalls that discharge to ocean waters to comply with the California Ocean Plan's model monitoring provisions and

any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Areas of Special Biological Significance (ASBS) Exception

The State Water Board adopted the California Ocean Plan (California Ocean Plan) in 1972, and has subsequently amended the Plan. The California Ocean Plan prohibits the discharge of waste to designated ASBS. ASBS are ocean areas designated by the State Water Board as requiring special protection through the maintenance of natural water quality. The California Ocean Plan states that the State Water Board may grant an exception to California Ocean Plan provisions where the State Water Board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (ASBS Exception), which grants an exception to the California Ocean Plan prohibition on discharges to ASBS for a limited number of industrial storm water Discharger applicants. The ASBS Exception contains "Special Protections" to maintain natural water quality and protect the beneficial uses of the ASBS. In order to legally discharge into an ASBS, these Dischargers must comply with the terms of the ASBS Exception and obtain coverage under this General Permit. This General Permit incorporates the terms of the ASBS Exception and includes the applicable monitoring requirements for all Dischargers discharging to an ASBS under the ASBS Exception.

H. Training Qualifications

This General Permit and the previous permit both require Dischargers to ensure that personnel responsible for permit compliance have an acceptable level of knowledge. Stakeholders have observed that the previous permit did not adequately specify how to comply with various elements of the permit, such as selecting discharge locations representative of the facility storm water discharge and evaluating potential pollutant sources, nor did it provide a clearly outlined Discharger training program. Guidance that is available from outside sources can be complicated to understand or costly to obtain, which can result in many Dischargers developing and implementing deficient SWPPPs and conducting inadequate monitoring activities. Some Dischargers under the previous permit had the resources to hire professional environmental staff or environmental consultants to assist in compliance. Even in those cases, however, there was little certainty that Dischargers received training regarding implementation of the various BMPs being implemented and required monitoring activities under the previous permit. Through this General Permit, the State Water Board seeks to improve compliance and monitoring data quality, and expand each Discharger's understanding of this General Permit's requirements.

This General Permit establishes the Qualified Industrial Storm Water Practitioner (QISP) role. A QISP is someone who has completed a State Water Board sponsored or

approved QISP training course and has registered in SMARTS. A QISP is required to implement certain General Permit requirements at the facility once it has entered Level 1 status in the ERA process as described in Section XII of this General Permit. In some instances it may be advisable for a facility employee to take the training, or for a facility to hire a QISP prior to entering Level 1 status as the training will contain information on the new permit requirements and how to perform certain tasks such as selecting discharge locations representative of the facility storm water discharge, evaluating potential pollutant sources, and identifying inadequate SWPPP elements.

Some industry stakeholders have claimed that their staff is already adequately trained. These employees may continue to perform the basic permit functions (e.g. prepare SWPPPs, perform monitoring requirements, and prepare Annual Reports) without receiving any additional training if the facility's sampling and analysis results do not exceed the NALs. This requirement is structured in a manner to reduce the costs of compliance for facilities that may not negatively impact receiving water quality.

California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG. The CBPELSG has staff and resources dedicated to investigate and take appropriate enforcement actions in instances where a licensed professional engineer or geologist is alleged to be noncompliant with CBPELSG's laws and regulations. Actions that result in noncompliance with this General Permit may constitute a potential violation of the CBPELSG requirements and may subject a licensee to investigation by the CBPELSG.

A QISP may represent one or more facilities but must be able to perform the functions required by this General Permit at all times. It is advisable that this individual be limited to a specific geographic region due to the difficulty of performing the needed tasks before, during, and after qualifying storm events may be difficult or impossible if extensive travel is required. Dischargers are required to ensure that the designated QISP has completed the appropriate QISP training course.

This General Permit contains a mechanism that allows for the Water Boards' Executive Director or Executive Officer to rescind the registration of any QISPs who are found to be inadequately performing their duties as a QISP will no longer be able to do so. A QISP may ask the State Water Board to review any decision to revoke his or her QISP registration. Table 1 of this Fact Sheet below describes the different roles that the QISP and California licensed professional engineers have in this General Permit.

TABLE 1: Role-Specific Permit Requirements

Qualifications	Task
QISP	Assist New Dischargers determine coverage eligibility for Discharges to an impaired water body, Level 1 ERA Evaluation and report, Level 2 ERA Action Plan, and Technical Report, and the Level 2 ERA extension
California licensed professional engineer	Inactive Mining Operation Certification, SWPPPs for inactive mining, and annual re-certification of Inactive Mining Operation Certification, NONA Technical Reports, and Subchapter N calculations

I. Storm Water Pollution Prevention Plan (SWPPP)

1. General

This General Permit requires that all Dischargers develop, implement, and retain onsite a site-specific SWPPP. The SWPPP requirements generally follow U.S. EPA's five-phase approach to developing SWPPPs, which has been adapted to reflect the requirements of this General Permit in Figure 2 of this Fact Sheet. This approach provides the flexibility necessary to establish appropriate BMPs for different industrial activities and pollutant sources. This General Permit requires a Discharger to include in its SWPPP (Section X of this General Permit) a site map, authorized NSWDs at the facility, and an identification and assessment of potential pollutant sources resulting from exposure of industrial activities to storm water.

This General Permit requires that Dischargers clearly describe the BMPs that are being implemented in the SWPPP. In addition to providing descriptions, Dischargers must also describe who is responsible for the BMPs, where the BMPs will be installed, how often and when the BMPs will be implemented, and identify any pollutants of concern. Table 2 of this Fact Sheet provides an example of how a Discharger could assess potential pollution sources and provide a corresponding BMPs summary.

This General Permit requires that Dischargers select an appropriate facility inspection frequency beyond the required monthly inspections if necessary, and to determine if SWPPP revisions are necessary to address any physical or operational changes at the facility or make changes to the existing BMPs (Section X.H.4.a.vii and Section XI.A.4 of this General Permit). Facilities that are subject to multi-phased physical expansion or significant seasonal operational changes may require more frequent SWPPP updates and facility inspections. Facilities with very stable operations may require fewer SWPPP updates and facility inspections.

Failure to develop or implement an adequate SWPPP, or update or revise an existing SWPPP as required, is a violation of this General Permit. Failure to maintain the SWPPP on-site and have it available for inspection is also a violation of this General Permit.

Dischargers are also required to submit their SWPPPs and any SWPPP revisions via SMARTS; accordingly, BMP revisions made in response to observed compliance problems will be included in the revised SWPPP electronically submitted via SMARTS. Not all SWPPP revisions are significant and it is up to the Dischargers to distinguish between revisions that are significant and those that are not significant. If no changes are made at all to the SWPPP, the Discharger is not required to resubmit the SWPPP on any specific frequency.

- **Significant SWPPP Revisions:** Dischargers are required to certify and submit via SMARTS their SWPPP within 30 days of the significant revision(s). While it is not easy to draw a line generally between revisions that are significant and those that are not significant, Dischargers are not required to certify and submit via SMARTS any SWPPP revisions that are comprised of only typographical fixes or minor clarifications.
- **All Other SWPPP Revisions:** Dischargers are required to submit revisions to the SWPPP that are determined to not be significant every three (3) months in the reporting year.

FIGURE 2: Five Phases for Developing and Implementing an Industrial Storm Water Pollution Prevention Plan (SWPPP)

PLANNING AND ORGANIZATION

- *Form Pollution Prevention Team
- *Review other facility plans

ASSESSMENT

- *Develop a site map
- *Identify potential pollutant sources
- *Inventory of materials and chemicals
- *List significant spills and leaks
- *Identify Non-Storm Water Discharges
- *Assess pollutant risk

Best Management Practice (BMP) IDENTIFICATION

- *Identify minimum required BMPs
- *Identify any advanced BMPs

IMPLEMENTATION

- *Train employees for the Pollution Prevention Team
- *Implement BMPs
- *Collect and review records

EVALUATION / MONITORING

- *Conduct annual facility evaluation (Annual Evaluation)
- *Review monitoring information
- *Evaluate BMPs
- *Review and revise SWPPP

TABLE 2: Example - Assessment of Potential Industrial Pollution Sources and Corresponding BMPs Summary

Area	Activity	Pollutant Source	Industrial Pollutant	BMPs
Vehicle and Equipment Fueling	Fueling	Spills and leaks during delivery	Fuel oil	-Use spill and overflow protection
		Spills caused by topping off fuel tanks	Fuel oil	-Train employees on proper fueling, cleanup, and spill response techniques
		Hosing or washing down fuel area	Fuel oil	-Use dry cleanup methods rather than hosing down area -Implement proper spill prevention control program
		Leaking storage tanks	Fuel oil	-Inspect fueling areas regularly to detect problems
		Rainfall running off fueling area, and rainfall running onto and off fueling area	Fuel oil	-Minimize run-on of storm water into the fueling area, cover fueling area

2. Minimum and Advanced BMPs

Section V of this General Permit requires the Discharger to comply with technology-based effluent limitations (TBELs). In this General Permit, TBELs rely on implementation of BMPs for Dischargers to reduce and prevent pollutants in their discharge. The BMP effluent limitations have been integrated into the Section X.H of this General Permit and are divided into two categories – minimum BMPs which are generally non-structural BMPs that all Dischargers must implement to the extent feasible, and advanced BMPs which are generally structural BMPs that must be implemented if the minimum BMPs are inadequate to achieve compliance with the TBELs. Section X of this General Permit includes both substantive control requirements in the form of the BMPs listed in Section X.H, as well as various reporting and recordkeeping requirements. The requirement to implement BMPs “to the extent feasible” allows Dischargers flexibility when implementing BMPs, by not requiring the implementation of BMPs that are not technologically available and economically practicable and achievable in light of best industry practices.

The 2008 MSGP requires Dischargers to comply with 12 non-numeric technology-based effluent limits in Section 2.1.2 of the permit through the implementation of “control measures.” This requirement is an expansion of the general considerations outlined in the MSGP adopted in 2000. The control measures specified by the U.S. EPA in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

1. Minimize Exposure
2. Good Housekeeping
3. Maintenance
4. Spill Prevention and Response Procedures
5. Erosion and Sediment Controls
6. Management of Runoff
7. Salt Storage Piles or Piles Containing Salt
8. Sector Specific Non-Numeric Effluent Limits
9. Employee Training
10. Non-Storm Water Discharges (NSWDs)
11. Waste, Garbage and Floatable Debris
12. Dust Generation and Vehicle Tracking of Industrial Materials

This General Permit addresses eleven of the above twelve control measures from the 2008 MSGP Section 2.1.2 Non-Numeric Technology-Based Effluent Limits (BPT/BAT/BCT). Eleven of the control measures are addressed as minimum BMPs that the State Water Board has determined to be most applicable to California’s Dischargers. Two of those eleven control measures (1- Minimize Exposure, 6 – Management of Runoff) are also identified as advanced BMPs (Section X.H.2 of this General Permit). This General Permit is not a sector-specific permit and therefore does not contain limitations to address control measure number 8 (Sector Specific Non-Numeric Effluent Limits).

The non-structural elements of the control measure to minimize exposure are addressed in the minimum BMP Section X.H.1 of this General Permit while structural control elements are addressed in the advanced BMP Section X.H.2 of this General Permit. The on-site diversion elements of the control measure to minimize exposure are addressed as minimum BMPs.

The runoff reduction elements of the control measure to minimize exposure are included as advanced BMPs. Advanced BMPs that are required to be implemented when a Discharger has implemented the minimum BMPs to the extent feasible and they are not adequate to comply with the TBELs. The advanced BMP categories are: (1) exposure minimization BMPs, (2) storm water containment and discharge reduction BMPs, (3) treatment control BMPs, and (4) additional advanced BMPs needed to meet the effluent limitations of this General Permit. Advanced BMPs are generally structural control measures and can include any BMPs that exceed the minimum BMPs. The control measure for Non-Storm Water Discharges (NSWDs) is addressed in both the discharge prohibitions (Section III) and authorized non-storm water discharges (Section IV) of this General Permit and essentially represents a minimum BMP.

This General Permit encourages Dischargers to utilize BMPs that infiltrate or reuse storm water where feasible. The State Water Board expects that these types of BMPs will not be appropriate for all industrial facilities, but recognizes the many possible benefits (e.g. increased aquifer recharge, reduces flooding, improvements to water quality) associated with the infiltration and reuse of storm water.

Encouraging the use of storm water infiltration and reuse BMPs is consistent with the statewide approach to managing storm water with lower impact methods.

The BMPs in this General Permit that coincide with the control measures in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

a. Minimization of Exposure to Storm Water

Section 2.1.2.1 of the 2008 MSGP requires Dischargers to minimize the exposure of industrial materials and areas of industrial activity to rain, snow, snowmelt, and runoff. The 2008 MSGP mixes both structural and nonstructural BMPs and specifies particular BMPs to consider when minimizing exposure such as grading/berming areas to minimize runoff, locating materials indoors, spill clean up, contain vehicle fluid leaks or drain fluids before storing vehicles on-site, secondary containment of materials, conduct cleaning activities undercover, indoors or in bermed areas, and drain all wash water to a proper collection system.

This General Permit requires the evaluation of BMPs in the potential pollutant source assessment in the SWPPP (Section X.G.2). When the minimum BMPs are not adequate to comply with the TBELs, Dischargers are required to implement advanced BMPs (Section X.H.2.a). These advanced BMPs may include additional exposure minimization BMPs (Section X.H.2.b.1).

b. Good Housekeeping

Section 2.1.2.2 of the 2008 MSGP requires that Dischargers keep all exposed areas that may be a potential source of pollutants clean and orderly. This General Permit (Section X.H.1.a) seeks to define “clean and orderly” by specifying a required set of nine (9) minimum good housekeeping BMPs, which include: observations of outdoor/exposed areas, BMPs for controlling material tracking, BMPs for dust generated from industrial materials or activities, BMPs for rinse/wash water activities, covering stored industrial materials/waste, containing all stored non-solid industrial materials, preventing discharge of rinse/wash waters/industrial materials, prevent non-industrial area discharges from contact with industrial areas of the facility, and prevent authorized NSWDS from non-industrial areas from contact with industrial areas of the facility.

c. Preventative Maintenance

Section 2.1.2.3 of the 2008 MSGP requires that Dischargers regularly inspect, test, maintain, and repair all industrial equipment to prevent leaks, spills and releases of pollutants that may be exposed to storm water discharged to receiving waters. This General Permit (Section X.H.1.b) incorporates this

concept by requiring four (4) nonstructural BMPs which include: identification and inspection of equipment, observations of potential leaks in identified equipment, an equipment maintenance schedule, and equipment maintenance procedures.

d. Spill and Leak Prevention and Response

Section 2.1.2.4 of the 2008 MSGP requires that Dischargers minimize the potential for leaks, spills and other releases that may be exposed to storm water. Dischargers are also required to develop a spill response plan which includes procedures such as labeling of containers that are susceptible to a spill or a leakage, establishing containment measures for such industrial materials, procedures for stopping leaks/spills, and provisions for notification of the appropriate personnel about any occurrence. This General Permit (Section X.H.1.c) requires implementation of four (4) BMPs to address spills. These BMPs include: developing a set of spill response procedures to minimize spills/leaks, develop procedures to minimize the discharge of industrial materials generated through spill/leaks, identifying/describing the equipment needed and where it will be located at the facility, and identify/training appropriate spill response personnel.

e. Erosion and Sediment Controls

Section 2.1.2.5 of the 2008 MSGP requires the use of structural and/or non-structural control measures to stabilize exposed areas and contain runoff. Also required is the use of a flow velocity dissipation device(s) in outfall channels where necessary to reduce erosion and/or settle out pollutants. This General Permit (Section X.H.1.e) requires the implementation of (5) BMPs to prevent erosion and sediment discharges. The erosion and sediment control BMPs include: implementing effective wind erosion controls, providing for effective stabilization of erodible areas prior to a forecasted storm event, site entrance stabilization/prevent material tracking offsite and implement perimeter controls, diversion of run-on and storm water generated from within the facility away from all erodible materials, and ensuring compliance with the design storm standards in Section X.H.6. U.S. EPA has developed online resources for erosion and sediment controls.⁶

f. Management of Runoff

Section 2.1.2.6 of the 2008 MSGP requires the diversion, infiltration, reuse, containment, or otherwise reduction of storm water runoff, to minimize pollutants in discharges. This General Permit (Sections X.H.1.a.viii, X.H.1.d.iv., and

⁶ U.S. EPA. 2008 MSGP. <<http://cfpub.epa.gov/npdes/stormwater/msgp.cfm>> [as of February 4, 2014].
 U.S. EPA. National Menu of BMPs. <<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>>. [as of February 4, 2014].
 U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas <<http://water.epa.gov/polwaste/nps/urban/index.cfm>>. [as of February 4, 2014].

X.H.1.e.iv) requires Dischargers to divert run-on from non-industrial sources and manage storm water generated within the facility away from industrial materials and erodible surfaces. Runoff reduction is required as an advanced BMP when minimum BMPs are not adequate to comply with the TBELs. The 2008 MSGP encouraged Dischargers to consult with EPA's internet-based resources relating to runoff management.⁷

g. Salt Storage Piles or Piles Containing Salt

Section 2.1.2.7 of the 2008 MSGP requires salt storage piles/piles containing salt that may be discharged to be enclosed or covered and to use BMPs when the salt is being used. This General Permit does not have a minimum BMP specifically for salt storage, however it does require all stockpiled/stored industrial materials be managed in a way to reduce or prevent industrial storm water discharges of the stored/stockpiled pollutants. The good housekeeping (Section X.H.1.a) and material handling and waste management (Section X.H.1.d) minimum BMPs in this General Permit require that all materials readily mobilized by storm water be covered, the minimization of handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event, and the diversion of run-on from stock piled materials.

h. Sector Specific Non-Numeric Effluent Limits

Section 2.1.2.8 of the 2008 MSGP requires Dischargers to achieve any additional non-numeric limits stipulated in the relevant sector-specific section(s) of Part 8 of the 2008 MSGP. This General Permit is not a sector-specific permit and does not contain sector-specific non-numeric effluent limitations like the 2008 MSGP. While this General Permit does not specify sector-specific BMPs, Dischargers are required to select and implement BMPs for their specific facility to reduce or prevent industrial storm water discharges of pollutants to comply with the technology-based effluent limitations. In addition, sectors with applicable ELGs must comply with those ELGs.

i. Employee Training Program

Section 2.1.2.9 of the 2008 MSGP requires all employees engaged in industrial activities or the handling of industrial materials that may affect storm water to obtain training covering implementation of this General Permit. This General Permit (Section X.D.1 and X.H.1.f) requires a facility to establish a Pollution Prevention Team (team members, collectively) responsible for implementing permit requirements such as the SWPPP, monitoring requirements, or BMPs.

⁷ U.S. EPA. Sector-Specific Industrial Stormwater Fact Sheet Series <www.epa.gov/npdes/stormwater/msgp>. [as of February 4, 2014].
 U.S. EPA. National Menu of Stormwater BMPs <www.epa.gov/npdes/stormwater/menuofbmps> [as of February 4, 2014].
 U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas (and any similar State or Tribal publications) <www.epa.gov/owow/nps/urbanmm/index.html>. [as of February 4, 2014].

The five (5) minimum training BMPs include: ensuring that all team members are properly trained, preparing the proper training materials and manuals, identifying which individuals need to be trained, providing a training schedule, and maintaining documentation on the training courses and which individuals received the training.

This General Permit also requires a QISP to be assigned to each facility that reaches Level 1 status. One purpose of a QISP is to have an individual available who can provide compliance assistance with these training requirements. The QISP is responsible for training the appropriate team members. Appropriate team members are any team members involved in implementing this General Permit for drainage areas causing NAL exceedances, and any other team members identified by the QISP that need additional training to implement this General Permit.

j. NSWDs

Section 2.1.2.10 of the 2008 MSGP requires that unauthorized NSWDs are eliminated (Part 1.2.3 of the 2008 MSGP lists the NSWDs authorized by the 2008 MSGP). The good housekeeping minimum BMP (Section X.H.1.a.ix of this General Permit) requires that contact between authorized NSWDs and industrial areas of the facility be minimized. This General Permit (Section IV) also includes separate requirements for authorized NSWDs and (Section III) prohibits unauthorized NSWDs.

k. Material Handling and Waste Management

Section 2.1.2.11 of the 2008 MSGP requires that Dischargers ensure waste, garbage, and floatable debris are not discharged into receiving waters. The 2008 MSGP identifies keeping areas clean and intercepting such materials as ways to minimize such discharges. This General Permit (Section X.H.1.d) requires Dischargers to implement six (6) general BMPs that address material handling and waste management. These BMPs include: preventing or minimizing handling of waste or materials during a storm event that could potentially result in a discharge, containing industrial materials susceptible to being dispersed by the wind, covering industrial waste disposal containers when not in use to contain industrial materials, diversion of run-on and storm water generated from within the facility away from all stock piled materials, cleaning and managing spills of such wastes or materials (in accordance with Section X.H.1.e of this General Permit), and conducting observations of outdoor areas and equipment that may come into contact with such materials or waste and become contaminated.

l. Waste, Garbage and Floatable Debris

Section 2.1.2.11 of the 2008 MSGP requires that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged. Material handling and waste management BMPs are included in Section X.H.1.d of this General Permit. Dischargers are required to: prevent handling of waste materials during a storm event that could result in a discharge, contain waste disposal

containers when not in use, clean and manage spills from waste, and observe outdoor areas and equipment that may come into contact with waste and become contaminated.

m. Dust Generation and Vehicle Tracking of Industrial Materials

Section 2.1.2.12 of the 2008 MSGP requires that generation of dust and off-site tracking of raw, final, or waste materials is minimized. This General Permit does not require minimization of dust generation and vehicle tracking of industrial materials as a minimum BMP directly. Dust generation and vehicle tracking of industrial materials BMPs are included in Section X.H.1.a (“good housekeeping”) of this General Permit where Dischargers must prevent dust generation from industrial materials or activities and contain all stored non-solid industrial materials that can be transported or dispersed via wind or come in contact with storm water, and Section X.H.1.d. (“material handling and waste management”) of this General Permit, which requires Dischargers to contain non-solid industrial materials or wastes that can be dispersed via wind erosion or come into contact with storm water during handling.

n. Quality Assurance and Record Keeping

Section 2.1.2 of the 2008 MSGP does not directly designate record keeping as a control measure. This General Permit (Section X.H.1.g) includes quality assurance and record keeping as a minimum BMP and requires Dischargers to implement three (3) general BMPs. These BMPs include: developing and implementing procedures to ensure that all elements of the SWPPP are implemented, develop a method of tracking and recording the implementation of all BMPs identified in the SWPPP, and a requirement to keep and maintain those records. This ensures that management procedures are designed and permit requirements are implemented by appropriate staff.

o. Implementation of BMPs in the SWPPP

Like the previous permit, this General Permit does not assign Dischargers a schedule to implement BMPs. Instead, this General Permit requires Dischargers to select the appropriate schedule to implement the minimum BMPs. In addition, this General Permit requires Dischargers to identify, as necessary, any BMPs that should be implemented prior to precipitation events. Although Dischargers are required to maintain internal procedures to ensure the BMPs are implemented according to schedule or prior to precipitation events, Dischargers are only required to certify in the Annual Report whether they complied with the BMP implementation requirements.

Dischargers are required to implement an effective suite of BMPs that meet the technology and water-quality based limitations of this General Permit. Based upon Regional Water Board staff inspections, there is significant variation between Dischargers’ interpretations of what BMPs were necessary to comply with the previous permit. This General Permit establishes a new requirement that Dischargers must implement, to the extent feasible, specific minimum BMPs

to reduce or prevent the presence of pollutants in their industrial storm water discharge. In addition, due to the wide variety of facilities conducting numerous and differing industrial activities throughout the state, this General Permit retains the requirement from the previous permit that Dischargers establish and implement additional BMPs beyond the minimum. Implementation of this General Permit's minimum BMPs, together with any necessary advanced BMPs, will result in compliance with the effluent limitations of this General Permit (Section V.A). All Dischargers must evaluate their facilities and determine the best practices within their industry considering technological availability and economic practicability and achievability to implement these minimum BMPs and any advanced BMPs.

The State Water Board has selected minimum BMPs that are generally applicable at all facilities. The minimum BMPs are consistent with the types of BMPs normally found in properly developed SWPPPs and, in most cases, should represent a significant portion of the effort required for a Discharger to achieve compliance. Due to the diverse industries covered by this General Permit, the development of a more comprehensive list of minimum BMPs is not currently feasible. The selection, applicability, and effectiveness of a given BMP is often related to industrial activity type and to facility-specific facts and circumstances. Advanced BMPs must be selected and implemented by Dischargers, based on the type of industry and facility-specific conditions, to the extent necessary to comply with the technology-based effluent limitation requirements of this General Permit.

Failure to implement all of the minimum BMPs to the extent feasible is a violation of this General Permit. (Section X.H.1.) Dischargers must justify any determination that it is infeasible to implement a minimum BMP in the SWPPP (Section X.H.4.b). Failure to implement advanced BMPs necessary to achieve compliance with either the technology or water quality standards requirements in this General Permit is a violation of this General Permit.

p. Temporary Suspension of Industrial Activities

The exception for inactive and unstaffed sites in section 6.2.1.3 of the 2008 MSGP does not require a Discharger with a facility that is inactive and unstaffed with no industrial materials or activities exposed to storm water (in accordance with the substantive requirements in 40 Code of Federal Regulations section 122.26(g)) to complete benchmark monitoring. The Discharger is required to sign and certify a statement in the SWPPP verifying that the site is inactive and unstaffed. If circumstances change and industrial materials or activities become exposed to storm water or the facility becomes active and/or staffed, this exception no longer applies and the Discharger is required to begin complying immediately with the applicable benchmark monitoring requirements under part 6.2 of the 2008 MSGP.

This General Permit allows Dischargers to temporarily suspend monitoring at facilities where industrial activities have been suspended in accordance with Section X.H.3. This is only intended for Dischargers with facilities where it is

infeasible to comply with this General Permit's monitoring while activities are suspended (e.g. remote, unstaffed, or inaccessible facilities during the time of such a suspension). Dischargers are required to update the facility's SWPPP with the BMPs being used to stabilize the site and submit the suspension dates and a justification for the suspension of monitoring via SMARTS.

3. Design Storm Standards for Treatment Control BMPs

It is the State Water Board's intent to minimize the regulatory uncertainty and costs concerning treatment control BMPs in order to encourage the implementation of treatment control BMPs when appropriate. Section X.H.6 of this General Permit specifies a design storm standard for use when treatment controls BMPs are installed. There is both a volume-based and flow-based design storm standard in this General Permit. Both are based on the 85th percentile 24-hour storm event. Without a design storm standard, Dischargers have installed treatment controls using a wide variety of designs that were sometimes either unnecessarily stringent/expensive, or deficient in complying with the requirements of the relevant permit. Some Dischargers have been hesitant to consider treatment options because of the uncertainty concerning acceptable treatment design. The design storm standards are generally expected to:

- Be consistent with the effluent limitations of this General Permit;
- Be protective of water quality;
- Be achievable for most pollutants and their associated treatment technologies; and,
- Reduce the costs associated with treating industrial storm water discharges beyond the levels necessary to achieve compliance with this General Permit.

In lieu of complying with the design storm standards for treatment control BMPs, Dischargers may certify and submit a Level 2 ERA Technical Report, including an Industrial Activity BMPs Demonstration (Section XII.D.2.a of this General Permit). The Level 2 ERA Technical Report requirement is based upon NAL exceedances. Under this option, a Discharger with Level 2 status must either implement BMPs to eliminate future NAL exceedances, or justify what BMPs must be implemented to comply with this General Permit even if the BMPs will not eliminate future exceedances of NALs. Dischargers who implement treatment control BMPs that vary from the design storm standards in Section X.H.6 must include an analysis showing that their treatment control BMPs comply with this General Permit's effluent limitations in the Industrial Activity BMP Demonstration.

This General Permit does not require Dischargers to retrofit existing treatment controls that do not meet the design storm standard, unless the Discharger determines that the existing treatment controls are not adequate to comply with this General Permit. In addition, once TMDL-specific implementation requirements are added to this General Permit, those Dischargers subject to TMDLs may need to add

new or retrofitted treatment control BMPs to meet the TMDL implementation requirements.

To arrive at these design storm standards, the State Water Board has relied heavily on previous Water Board decisions concerning treatment efficacy for municipalities, published documents, stakeholder comments, and reasonableness. In 2000, the State Water Board issued State Water Board Order WQ 2000-11, which upheld Los Angeles Regional Water Board's permit requirements which mandated that all new development and redevelopment exceeding certain size criteria design treatment BMPs based on a specific storm volume: the 85th percentile 24-hour storm event. This design storm standard was based on research demonstrating that the standard represents the maximized treatment volume cut-off at the point of diminishing returns for rainfall/runoff frequency.⁸ On the basis of this equation, the maximized runoff volume for 85 percent treatment of annual runoff volumes in California can range from 0.08 to 0.86 inch depending on the imperviousness of the watershed area and the mean amount of rainfall. This design storm standard is referred to as the Standard Urban Storm Water Mitigation Plan's volumetric criterion and there are multiple acceptable methods of calculating this volume. For more information, see the California Stormwater Best Management Practices Handbook.⁹

The San Diego Regional Water Board first established both volumetric and flow-based design storm criteria for NPDES MS4 permits. It is generally accepted by civil engineers doing hydrology work to use twice the peak hourly flow of a specific storm event to use as the basis for flow-based design of BMPs. This General Permit therefore establishes the flow-based design storm standard to be twice the peak hourly flow of the 85th percentile 24-hour storm event.

The primary objective of specifying a design storm standard is to properly size BMPs to, at a minimum, effectively treat the first flush of run-off from all storm events. The economic impacts of treating all storm water from a facility versus the minimal environmental benefit of complete treatment justify the design storm approach. It is unrealistic to require each facility to do a cost benefit analysis of their treatment structures. To simplify the requirements for design, the State Water Board reviewed research from the City of Portland¹⁰ and the City of San Jose¹¹ to determine the volume of each rain event compared to the amount of events that occur for that volume. The results of their findings show an inflection point that is typically found at approximately the 80 to 85 percentile of recorded storm events.

⁸ California Regional Water Quality Control Board Los Angeles Region, Standard Urban Storm Water Mitigation Plans and Numerical Design Standards for Best Management Practices - Staff Report and Record of Decision (Jan. 18, 2000) <http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/susmp/susmp_final_staff_report.pdf>. [as of February 4, 2014].

⁹ California Stormwater Quality Association, Stormwater Best Management Practice New Development and Redevelopment Handbook (2003) <<http://www.casqa.org/>>. [as of February 4, 2014].

¹⁰ City of Portland Oregon. Portland Stormwater Management Manual Appendix E.1: Pollution Reduction Methodology E.1-1 (August 1, 2008). <<http://www.portlandoregon.gov/bes/article/202909>>. [as of February 4, 2014].

¹¹ California Stormwater Quality Association (CASQA). CASQA BMP Handbook (January 2003) New Development and Redevelopment (Errata 9-04) <<http://www.casqa.org/>>. [as of February 4, 2014].

Dischargers should be aware of the potential unintended public health concerns associated with treatment control BMPs. Extensive monitoring studies conducted by the California Department of Public Health (CDPH) have documented that mosquitoes opportunistically breed in structural BMPs, particularly those that hold standing water for over 96 hours. BMPs that produce mosquitoes create potential public health concerns and increase the burden on local vector control agencies that are mandated to inspect for and abate mosquitoes and other vectors within their jurisdictional boundaries. These unintended consequences can be lessened when BMPs incorporate design, construction, and maintenance principles developed specifically to minimize standing water available to mosquitoes¹² while having negligible effects on the capacity of the structures to provide water quality improvements. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers.¹³

Dischargers who install any type of volume-based treatment device are encouraged to consider the BMPs in the California Department of Public Health's guidance manual published July 2012, "Best Management Practices for Mosquito Control in California" at <http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf>.

4. Monitoring Implementation Plan

Dischargers are required to prepare and implement a Monitoring Implementation Plan (Section X.I of this General Permit). The Monitoring Implementation Plan requirements are designed to assist the Discharger in developing a comprehensive plan for the monitoring requirements in this General Permit and to assess their monitoring program. The Monitoring Implementation Plan includes a description of visual observation procedures and locations, as well as sampling procedures, locations, and methods. The Monitoring Implementation Plan shall be included in the SWPPP.

J. Monitoring and Reporting Requirements

1. General Monitoring Provisions

This General Permit requires Dischargers to develop and implement a facility-specific monitoring program. Monitoring is defined as visual observations, sampling and analysis. The monitoring data will be used to determine:

¹² California Department of Public Health. (2012). Best Management Practices for Mosquito Control in California. <<http://www.westnile.ca.gov/resources.php>>. [as of February 4, 2014]

¹³ California Health & Safety Code, Division 3, Section 2060 and following.

- a. Whether BMPs addressing pollutants in industrial storm water discharges and authorized NSWs are effective for compliance with the effluent and receiving water limitations of this General Permit,
- b. The presence of pollutants in industrial storm water discharges and authorized NSWs (and their sources) that may trigger the implementation of additional BMPs and/or SWPPP revisions; and,
- c. The effectiveness of BMPs in reducing or preventing pollutants in industrial storm water discharges and authorized NSWs.

Effluent sampling and analysis information may be useful to Dischargers when evaluating the need for improved BMPs. The monitoring requirements in this General Permit recognize the 2008 MSGP approach to visual observations as an effective monitoring method for evaluating the effectiveness of BMPs at most facilities. Section 6.2 of the 2008 MSGP limits its monitoring sampling requirements to certain industrial categories. Similar to the previous permit, this General Permit requires all Dischargers to sample unless they have obtained NEC coverage or have an inactive mining operation(s) certified as allowed under this General Permit Section XIII.

This General Permit defines a Qualifying Storm Event (QSE) to provide clarity to Dischargers of when sampling is required. The previous permit (Section B.5.a) specified that sampling was required within the first hour of discharge, however, this General Permit requires Dischargers to sample within four hours of the start of Discharge. Many Dischargers were not able to get samples of their discharge locations within one (1) hour under the previous permit so this general permit has expanded the timeframe allowed to provide enough time to sample all discharge locations. The previous permit required three working dry days before sampling and this General Permit defines this period as 48 hours, this timeframe was decreased to provide more opportunities for Dischargers to obtain samples. This General Permit does not specify a volume for sampling due to the complexity of using rain gauges and the limited access of rain gauge station data.

Dischargers are only required to obtain samples required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii of this General Permit. If a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples at discharge locations that are still producing a discharge at the start of facility operations. Under the previous permit, many Dischargers were unable to obtain samples due to rainfall beginning at night.

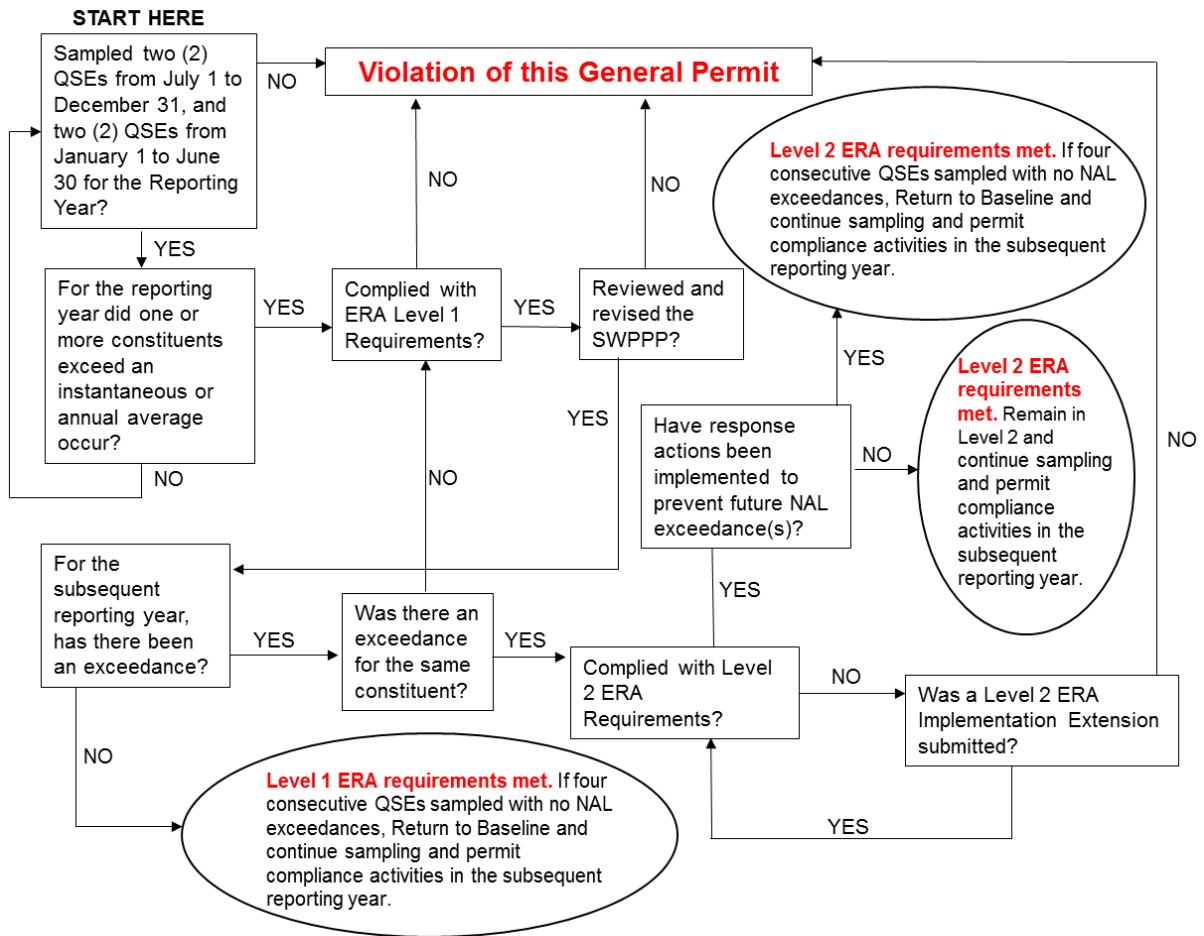
The State Water Board recognizes that it may not be feasible for all facilities to obtain four QSEs in a reporting year because there may not be enough qualifying storm events to do so. Therefore, a Discharger that is unable to collect and analyze storm water samples from two QSEs in each half of a reporting year due to a lack of QSEs is not in violation of Section XI.B.2. Dischargers that miss four QSEs during

a reporting year due to the fact that four QSEs did not occur are not required to make up these sampling events in subsequent reporting years.

The State Water Board recognizes that each facility has unique physical characteristics, industrial activities, and/or variations in BMP implementation and performance which warrants the requirement that each facility demonstrate its compliance. Figure 3 of this Fact Sheet provides a summary of all the monitoring-related requirements of this General Permit. This General Permit's monitoring requirements include sampling and analysis requirements for specific indicator parameters that indicate the presence of pollutants in industrial storm water discharges. The "indicator parameters" are oil and grease (for petroleum hydrocarbons), total suspended solids (for sediment and sediment bound pollutants) and pH (for acidic and alkaline pollutants). Additionally, Dischargers are required to evaluate their facilities and analyze samples for additional facility-specific parameters. These monitoring program requirements are designed to provide useful, cost-effective, timely, and easily obtained information to assist Dischargers as they identify their facility's pollutant sources and implement corrective actions and revise BMPs as necessary (Section XI.A.4 of this General Permit).

This General Permit requires a combination of visual observations and analytical monitoring. Visual observations provide Dischargers with immediate information indicating the presence of many pollutants and their sources. Dischargers must implement timely actions and revise BMPs as necessary (Section XI.A.4) when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP. Analytical monitoring provides an additional indication of the presence and concentrations of pollutants in storm water discharge. Dischargers are required to evaluate potential pollutant sources and corresponding BMPs and revise the SWPPP appropriately when specific types of NAL exceedances occur as described below.

FIGURE 3: Compliance Determination Flowchart



2. Visual Observations

There are two major changes to the visual observation requirements in this General Permit compared to the previous permit, which include:

a. Monthly Visual Observations

The previous permit required separate quarterly visual observations for unauthorized and authorized non-storm water discharges. It did not require periodic visual observations of the facility to determine whether all potential pollutant sources were being adequately controlled with BMPs. Prior drafts of this General Permit proposed the addition of pre-storm inspections. This was met with great resistance by Dischargers because of the complexity and burden of determining when a QSE would occur. Many of these Dischargers recommended that monthly BMP and non-storm water discharge visual observations should replace the proposed pre-storm inspections. This General Permit merges all visual observations into a single monthly visual observation.

b. Sampling Event Visual Observations

The previous permit required monthly storm water visual observations. This required Dischargers to conduct visual observations for QSEs that were not being sampled since only two QSEs were required to be sampled in the previous permit. As discussed below, the sampling requirement has been increased to four QSEs within each reporting year with two QSEs required in each half of the reporting year. We expect that this will result in more samples being collected and analyzed, since most of California experiences, on average, at least two QSEs per half year. This General Permit streamlines the storm water visual observation requirement by linking the visual observations to the time of sampling.

3. Sampling and Analysis

a. General

As part of the process for developing previous drafts of this General Permit, the State Water Board considered comments from numerous stakeholders concerning sampling and analysis. Sampling and analysis issues were the most dominant of all issues raised in the comments.

The State Water Board received stakeholder comments that fall into three primary categories concerning this General Permit's sampling and analysis approach:

- i. Comments supporting an intensive water quality sampling and analysis approach (with the goal of producing more accurate discharge-characterizing and pollutant concentration data) as the primary method of determining compliance with effluent limitations and receiving water limitations. Since this approach requires large amounts of high quality data to accurately quantify the characteristics of the discharges, it is referred to as the quantitative monitoring approach. Stakeholders supporting the quantitative approach generally also support the use of stringent NELs to evaluate compliance with this General Permit;
- ii. Comments supporting only visual observations as the primary method of determining compliance: These stakeholders generally assert that storm water sampling is an incomplete and not very cost effective means of determining water quality impacts on the receiving waters; and,
- iii. Comments supporting a combination of visual observations and cost-effective water quality sampling and analysis approach (sampling and analysis that would produce data indicating the presence of pollutants) to determine compliance (similar to the previous permit's approach). Since this approach uses more qualitative information to describe the quality and characteristics of the discharges, it is referred to as the qualitative monitoring approach.

Within each of the three categories, there are various recommendations and rationales as to the exact monitoring frequencies, procedures and methods, required to implement the approach. Stakeholders in favor of the quantitative monitoring approach commented that it is the only reliable and meaningful

method of assuring that: (1) BMPs are effective in reducing or preventing pollutants in storm water discharge in compliance with BAT/BCT, and (2) the discharge is not causing or contributing to an exceedance of a water quality standards. The stakeholders state that visual observations are not effective in measuring pollutant concentrations nor is it effective in determining the presence of colorless and/or odorless pollutants. The stakeholders state that qualitative monitoring (and the use of indicator parameters) will not provide results useful for calculating pollutant loading nor will it accurately characterize the discharge.

Stakeholders in favor of requiring only visual observations state that sampling and analysis is unnecessary because (1) the previous permit did not include NELs so the usefulness of sampling and analysis data is limited, (2) a significant majority of Dischargers should be able to develop appropriate BMPs without sampling and analysis data, (3) most pollutant sources and pollutants can be detected and mitigated through visual observations, (4) the costs associated with quantitative monitoring are excessive and disproportionate to any benefits, (5) U.S. EPA's storm water regulations do not require sampling, (6) The 2008 MSGP relies heavily on visual observations and requires only a limited number of specific industries to conduct sampling and analysis, and (7) the majority of Dischargers are small businesses and do not have sufficient training or understanding to perform accurate sampling and analysis.

Stakeholders in favor of requiring both visual observations and a cost-effective qualitative monitoring program state that (1) both are within the means and understanding of most Dischargers, and (2) monitoring results are useful for evaluating a Discharger's compliance without unnecessarily increasing the burden on the Discharger and without subjecting Dischargers to non-technical enforcement actions.

The State Water Board finds that it is feasible for the majority of Dischargers to develop appropriate BMPs without having to perform large amounts of quantitative monitoring, which can be very costly. In the absence of implementing NELs, the State Water Board has determined that the infeasibility and costs associated with developing quantitative monitoring programs at each of thousands industrial facilities currently permitted would outweigh the limited benefits. The primary difficulty associated with requiring intensive quantitative monitoring lies with the cost and the difficulty of accurately sampling industrial storm water discharges.

Stakeholders that support quantitative monitoring believe the data is necessary to determine pollutant loading, concentration, or contribution to water quality violations. In order to derive data necessary to support those goals, however, the data must be of high quality, meaning it must be accurate, precise and have an intact chain of custody. Many industrial facilities do not have well-defined storm water conveyance systems for sample collection. Storm water frequently discharges from multiple locations through sheet flow into nearby streets and adjoining properties. Sample collection from a portion of the sheet flow is an inexact measurement since not all of the flow is sampled. Requiring every Discharger to construct well-defined storm water conveyances may cost

anywhere from thousands to hundreds of thousands of dollars per facility depending on the size and nature of each industrial facility. At many facilities, the construction of such conveyances may also violate local building codes, create safety hazards, cause flooding, or increase erosion. In addition, eliminating sheet flow at some facilities could result in increased pollutant concentrations.

The State Water Board has considered the complexity and costs associated with quantitative monitoring. Unlike continuous point source discharges (e.g., publicly owned treatment works), storm water discharges are variable in intensity and duration. The concentration of pollutants discharged at any one time is dependent on many complex variables. The largest concentration of pollutants would be expected to discharge earlier in the storm event and taper off as discharges continue. Therefore, effective quantitative monitoring of storm water discharges would require that storm water discharges be collected and sampled until most or all of the pollutants have been discharged. Multiple samples would need to be collected over many hours. To determine the pollutant mass loading, the storm water discharge flow must also be measured each time a sample is collected.

For a quantitative monitoring approach to yield useful pollutant loading information, the installation of automatic sampling devices and flow meters at each discharge location would usually be necessary. In addition, qualified individuals would be needed to conduct the monitoring procedures, and to handle and maintain flow meters and automatic samplers are needed. A significant majority of storm water Dischargers under this General Permit do not possess the skills to manage such an effort. Dischargers will bear the cost of employing and/or training on-site staff to do this work, or the cost of contracting with environmental consultants and acquiring the required flow meters and automatic samplers. The cost to Dischargers to conduct quantitative monitoring varies depending on the number of outfalls, the number of storms, the length of each storm, the amount of staff training, and other variables.

To address these concerns, this General Permit includes a number of new items that bridge the gap between the previous permit's qualitative monitoring and the quantitative approach recommended by many commenters. This General Permit includes a requirement for all Dischargers to designate a QISP when they enter Level 1 status due to NAL exceedances. The QISP is required to be trained to: (1) more accurately identify discharge locations representative of the facility storm water discharge (2) select and implement appropriate sampling procedures (3) evaluate and develop additional BMPs to reduce or prevent pollutants in the industrial storm water discharges.

Dischargers that fail to develop and implement an adequate Monitoring Implementation Plan that includes both visual observations and sampling and analysis, are in violation of this General Permit. Dischargers that fail to comply with Level 1 status and Level 2 status ERA requirements, triggered by NAL exceedances, are in violation of this General Permit.

Water Code section 13383.5 requires that the State Water Board include (1) standardized methods for collection of storm water samples, (2) standardized methods for analysis of storm water samples, (3) a requirement that every sample analysis be completed by a State certified laboratory or in the field in accordance with Quality Assurance and Quality Control (QA/QC) protocols, (4) a standardized reporting format, (5) standardized sampling and analysis programs for QA/QC, and (6) minimum detection limits. The monitoring requirements in this General Permit (Section XI), as supplemented by SMARTS, address these requirements.

Under the previous permit, many Dischargers did not developed adequate sample collection and handling procedures, decreasing the quality of analytical results. In addition, Dischargers often selected inappropriate test methods, method detection limits, or reporting units. This General Permit requires all Dischargers to identify discharge locations that are representative of industrial storm water discharges and develop and implement reasonable sampling procedures to ensure that samples are not mishandled or contaminated.

It is infeasible for the State Water Board to provide a single comprehensive set of sample collection and handling procedures/instructions due to the wide variation in storm water conveyance and collection systems in use at facilities around the state. As an alternative, Attachment H of this General Permit provides minimum storm water sample collection and handling instructions that pertain to all facilities. Dischargers are required to develop facility-specific sample collection and handling procedures based upon these minimum requirements. Table 2 in this General Permit provides the minimum test methods that shall be used for a variety of common pollutants. Dischargers must be aware that use of more sensitive test methods (e.g., U.S. EPA Method 1631 for Mercury) may be necessary if they discharge to an impaired water body or are otherwise required to do so by the Regional Water Board. This General Permit allows Dischargers to propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, SMARTS will be updated over time to add additional acceptable analytical test methods.

The previous permit allowed Dischargers to reduce sampling analysis requirements for substantially similar drainage areas by either (1) combining samples for an unspecified maximum number of substantially similar drainage areas, or (2) sampling a reduced number of substantially similar drainage areas. The State Water Board provided this procedure to reduce analytical costs. The complexity associated with determining substantially similar drainage areas has led Dischargers to produce various, and sometimes questionable, analytical schemes. In addition, the previous permit did not establish a maximum number of samples that could be combined.

To standardize sample collection and analysis as required by Water Code section 13383.5, while continuing to offer a reduced analytic cost option, these

requirements have been revised. Section XI.B.4 of this General Permit requires Dischargers to collect samples from all discharge locations regardless of whether the discharges are substantially similar or not. Dischargers may analyze each sample collected, or may analyze a combined sample consisting of equal volumes, collected from as many as four (4) substantially similar discharge locations. A minimum of one combined sample shall be analyzed for every one (1) to four (4) discharge locations, and the samples shall be combined in the lab in accordance with Section XI.C.5 of this General Permit.

Representative sampling is only allowed for sheet flow discharges or discharges from drainage areas with multiple discharge locations. Dischargers shall select the appropriate location(s) to be sampled and intervals necessary to obtain samples representative of storm water associated with industrial activities generated within the corresponding drainage area. Dischargers are not required to sample discharge locations that have no exposure of industrial activities or materials as defined in Section XVII of this General Permit within the corresponding drainage area. However, Dischargers are required to conduct the monthly visual observations regardless of the selected locations to be sampled.

This General Permit defines a QSE as a precipitation event that produces a discharge from any drainage area that is preceded by 48 consecutive hours without a discharge from any drainage area. The previous permit did not include a QSE definition; instead, it utilized a different approach to defining the storm events that were required to be sampled. Under the previous permit, eligible storm events were storm events that occurred after three consecutive working days of dry weather. The three consecutive working days of dry weather definition in the previous permit led Dischargers to miss many opportunities to sample. Some Dischargers were unable to collect samples from two storm events in certain years under the previous definition. To resolve this difficulty, this General Permit increases the sampling requirements to four (4) QSEs per year, while decreasing the number of days without a discharge, resulting in additional opportunities for Dischargers to sample. Additionally, by eliminating the previous permit's reference to "dry weather," this General Permit allows some precipitation to occur between QSEs so long as there is no discharge from any drainage area. This change will result in more QSE sampling opportunities.

To improve clarity and consistency, the definitions contained in other storm water permits were considered with the goal of developing a standard definition for 'dry weather' for this General Permit. The 2008 MSGP sets a "measurable storm event" as one that produces at least 0.1 inches of precipitation and results in an actual discharge after 72 hours (three days) of dry weather. The State of Washington defines a "qualifying storm event" as a storm with at least 0.1 inches of precipitation preceded by at least 24 hours of no measurable precipitation, mirroring the definition found in the previous MSGP (2000 version). The State of Oregon requires that samples be taken in the first 12 hours of discharge and no less than 14 days apart. Review of other permits concludes that there is not a single commonly used approach to triggering sampling in industrial general permits. Therefore an enforceable sampling trigger is included in this General

permit that requires Dischargers to sample four storm events within each reporting year.

b. Effluent Water Quality Sampling and Analysis Parameters

Dischargers are required to sample and analyze their effluent for certain parameters. "Parameter" is a term used in laboratory analysis circles to represent a distinct, reportable measure of a particular type. For example, ammonia, hexavalent chromium, total nitrogen and chemical oxygen demand are all parameters that a laboratory can analyze storm water effluent for and report a quantity back. A parameter is also an indicator of pollution. In this General Permit, pH, total suspended solids and chemical oxygen demand are examples of indicator parameters. They are not direct measures of a water quality problem or condition of pollution but can be used to indicate a problem or condition of pollution. Indicator parameters can also be used to indicate practices and/or the presence of materials at a facility to bring forth information for compliance evaluation processes, like annual report review and inspection. For example, chemical oxygen demand concentrations can indicate the presence of dissolved organic compounds, like residual food from collected recycling materials.

Minimum parameter-specific monitoring is required for Dischargers, regardless of whether additional facility-specific parameters are selected. This General Permit requires some parameters to be analyzed and reported for the duration of permit coverage to develop comparable sampling data over time and over many storm events and to demonstrate compliance. The Regional Water Boards may use such data to evaluate individual facility compliance and assess the differences between various industries. Accordingly, the parameters selected correspond to a broad range of industrial facilities, are inexpensive to sample and analyze, and have sampling and analysis methods which are easy to understand and implement. Some analytical methods for field measurements of some parameters, such as pH, may be performed using relatively inexpensive field instruments and provides an immediate alert to possible pollutant sources.

The following three selected minimum parameters are considered indicator parameters, regardless of facility type. These parameters typically provide indication and/or the correlation of whether other pollutants are present in storm water discharge. These parameters were selected for the following reasons:

- i. pH is a numeric measurement of the hydrogen-ion concentration. Many industrial facilities handle materials that can affect pH. A sample is considered to have a neutral pH if it has a value of 7. At values less than 7, water is considered acidic; above 7 it is considered alkaline or basic. Pure rain water in California typically has a pH value of approximately 7.
- ii. Total Suspended Solids (TSS) is an indicator of the un-dissolved solids that are present in storm water discharge. Sources of TSS include sediment from erosion, and dirt from impervious (i.e., paved) areas. Many pollutants adhere to sediment particles; therefore, reducing sediment will reduce the amount of these pollutants in storm water discharge.

- iii. Oil and Grease (O&G) is a measure of the amount of O&G present in storm water discharge. At very low concentrations, O&G can cause sheen on the surface of water. O&G can adversely affect aquatic life, create unsightly floating material, and make water undrinkable. Sources of O&G include, but are not limited to, maintenance shops, vehicles, machines and roadways.

The previous permit allowed Dischargers to analyze samples for either O&G or Total Organic Carbon (TOC). This General Permit requires all Dischargers analyze samples for O&G since almost all Dischargers with outdoor activities operate equipment and vehicles can potentially generate insoluble oils and greases. Dischargers with water soluble-based organic oils may be required to also test for TOC. The TOC and O&G tests are not synonymous, duplicative or interchangeable.

This General Permit removes the requirement to analyze for specific conductance as part of the minimum analytic parameters. Specific conductance is not required by U.S. EPA for any industry type. Additionally, stakeholder comments indicate that there are many non-industrial sources that may cause high specific conductance and interfere with the efficacy of the test. For example, salty air deposition that occurs at facilities in coastal areas may raise the specific conductance in water over 500 micro-ohms per centimeter ($\mu\text{hos/cm}$). Dischargers are not prevented from performing a specific conductance test as a screening tool if it is useful to detect a particular pollutant of concern as required (e.g. salinity).

This General Permit requires Dischargers subject to Subchapter N ELGs for pH to analyze for pH using approved test methods in accordance with 40 Code of Federal Regulations part 136. These federal regulations specify that analysis of pH must take place within 15 minutes of sample collection. All other Dischargers may screen for pH using wide range litmus pH paper or other equivalent pH test kits within 15 minutes of sample collection. If in any reporting year a Discharger has two or more pH results outside of the range of 6.0 – 9.0 pH units, that Discharger is required to comply with the approved test methods in 40 Code of Federal Regulations part 136 in subsequent reporting years.

For almost all Dischargers, obtaining laboratory analysis within 15 minutes is logistically impossible. For many Dischargers, maintaining a calibrated pH meter is difficult, labor intensive, and error prone. Screening for pH will limit the number of additional Dischargers required to comply with 40 Code of Federal Regulations part 136 methods to those that have pH measures outside the range of 6.0-9.0 pH units. The use of wide range litmus pH paper or other equivalent pH test kits is not as accurate as a calibrated pH meter, however litmus paper is allowed in the 2008 MSGP, and when used properly it can provide an accurate screening measure to determine if further more-accurate pH sampling is necessary to determine compliance.

Review of available monitoring data shows that storm water discharges from most types of industrial facilities comply with the pH range of 6.0 to 9.0 pH units. There are specific types of industries, like cement or concrete manufacturers that

have shown a trend of higher pH values very close to 9.0 pH units. Rather than require all industries as a whole to monitor with the more costly 40 Code of Federal Regulations part 136 methods, this General Permit establishes a triggering mechanism for these more advanced pH test methods. The Regional Water Boards retain their authority to require more accurate test methods. Once a Discharger triggers the requirement to use the more accurate testing methods in 40 Code of Federal Regulations part 136, the Discharger may not revert back to screening for pH for the duration of coverage under this General Permit.

In the early 1990s, U.S. EPA, through its group application program, evaluated nationwide monitoring data and developed the listed parameters and SIC associations shown in Table 1 of this General Permit. The 2008 MSGP requires that Dischargers analyze storm water effluent for the listed parameters under certain conditions. In addition to the parameters in Table 1 of this General Permit, Dischargers are required to select additional facility-specific analytical parameters to be monitored, based upon the types of materials that are both exposed to and mobilized by contact with storm water. Dischargers must, at a minimum, understand how to identify industrial materials that are handled outdoors and which of those materials can easily dissolve or be otherwise transported via storm water.

The Regional Water Boards have the authority to revise the monitoring requirements for an individual facility or group of facilities based on site-specific factors including geographic location, industry type, and potential to pollute. For example, the Los Angeles Regional Water Board required all dismantlers (SIC Code 5015) within their jurisdiction to monitor for copper and zinc instead of aluminum and iron during the term of the previous permit. SMARTS will be programmed to incorporate any monitoring revisions required by the Regional Water Boards. Dischargers will receive email notification of the monitoring requirement revision and their SMARTS analytical reporting input screen will display the corresponding revisions. Dischargers may add, but not otherwise modify, the sampling parameters on their SMARTS input screen.

Dischargers are also required to identify pollutants that may cause or contribute to an existing exceedance of any applicable water quality standards for the receiving water. This General Permit requires Dischargers to control its discharge as necessary to meet the receiving water limitations, and to select additional monitoring parameters that are representative of industrial materials handled at the facility (regardless of the degree of storm water contact or relative mobility) that may be related to pollutants causing a water body to be impaired.

4. Methods and Exceptions

a. Storm Water Discharge Locations

Dischargers are required to visually observe and collect samples of industrial storm water discharges from each drainage area at all discharge locations. These samples must be representative of the storm water discharge leaving each drainage area. This is a change from the previous permit which allowed a

Discharger to reduce the number of discharge locations sampled if two or more discharge locations were substantially similar.

Dischargers are required to identify, when practicable, alternate discharge locations if: (1) the facility's industrial drainage areas are affected by storm water run-on from surrounding areas that cannot be controlled, or (2) discharge locations are difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

b. Representative Sampling Reduction

Some stakeholders have indicated that there are unique circumstances where sampling a subset of representative discharge locations fully characterizes the full set of storm water discharges. Stakeholders provided examples related to drainage areas with multiple discharge locations where sampling only a subset of these discharge locations produces results that are representative of the drainage areas' storm water discharges. In such situations, this General Permit allows Dischargers to reduce the number of discharge locations. For each drainage area with multiple discharge locations (e.g. roofs with multiple downspouts, loading/unloading areas with multiple storm drain inlets), the Discharger may reduce the number of discharge locations to be sampled if the conditions in Section XI.C.4 of this General Permit are met.

c. Qualified Combined Samples

Dischargers may combine samples from up to four (4) discharge locations if the industrial activities within each drainage area and each drainage area's physical characteristics (i.e. grade, surface materials) are substantially similar.

Dischargers are required to provide documentation in the Monitoring Implementation Plan supporting that the above conditions have been evaluated and fulfilled. A Discharger may combine samples from more than four (4) discharge locations only with approval from the appropriate Regional Water Board.

d. Sample Collection and Visual Observation Exceptions

Dischargers are not required to collect samples or conduct visual observations during dangerous weather conditions such as flooding or electrical storms, or outside of scheduled facility operating hours. A Discharger is not precluded from conducting sample collection activities or visual observations outside of scheduled facility operating hours.

In the event that a Discharger is unable to collect the required samples or conduct visual observations due to the above exceptions, the Discharger must include an explanation of the conditions obstructing safe monitoring in its Annual Report. If access to a discharge location is dangerous on a routine basis, a Discharger must choose an alternative discharge location in accordance with General Permit Section XI.C.3.

e. Sampling Frequency Reduction

Facilities that do not have NAL exceedances for four (4) consecutive QSEs are unlikely to pose a significant threat to water quality. If the storm water from these facilities is also in full compliance with this General Permit, the Discharger is eligible for a reduction in sampling frequency. The Sampling Frequency Reduction allows a Discharger to decrease its monitoring from four (4) samples within each reporting year to one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of each reporting year (January 1 to June 30). If a Discharger has a subsequent NAL exceedance after the Sampling Frequency Reduction, it must comply with the original sampling requirements of this General Permit. Only Dischargers that have baseline status or that have satisfied the Level 1 requirements are eligible for this sampling and analysis reduction.

A Discharger requesting to reduce its sampling frequency shall certify and submit a Sampling Frequency Reduction certification via SMARTS. The Sampling Frequency Reduction certification shall include documentation that the General Permit conditions for the Sampling Frequency Reduction have been satisfied.

Dischargers participating in a Compliance Group and certifying a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year. These Dischargers must receive year-round compliance assistance from their Compliance Group Leader and must comply with all requirements of this General Permit.

5. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

Federal regulations at Subchapter N establish ELGs for industrial storm water discharges from facilities in eleven industrial sectors. For these facilities, compliance with the ELGs constitutes compliance with the technology standard of BPT, BAT, BCT, or New Source Performance Standards provided in the ELG for the specified pollutants, and compliance with the technology-based requirements in this General Permit for the specified pollutant.

K. Exceedance Response Actions (ERAs)

1. General

The previous permit did not incorporate the benchmarks from any of the MSGPs or NALs for Dischargers to evaluate sampling results. Unlike the requirements for industrial storm water discharges that cause or contribute to an exceedance of a water quality standards, the previous permit did not provide definitions, procedures or guidelines to assess sampling results. Many Regional Water Boards have formally or informally notified Dischargers that exceedances of the MSGP benchmarks should be used to determine whether additional BMPs are necessary. However, there was considerable confusion as to the extent to which a Discharger would be expected to implement actions in response to exceedances of these values, and the timelines that had to be met to prevent an enforcement action. The lack of specificity with regards to what constituted an exceedance, and what actions

are required in response to an exceedance, have been identified as a problem by the Water Boards, industry and environmental stakeholders.

This General Permit contains two (2) types of NALs. Annual NALs function similarly to, and are based upon, the values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants and are established based on California industrial storm water discharge monitoring data. When a Discharger exceeds an NAL it is required to perform ERAs. The ERAs are divided into two levels of responses and can generally be differentiated by the number of years in which a facility's discharge exceeds an NAL trigger. These two levels are explained further in Section XII of this General Permit. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This process is also designed to provide Dischargers with a more defined pathway towards full compliance.

The ERA requirements in this General Permit were developed using best professional judgment and Water Board experience with the shortcomings of the previous permit's compliance procedures. Public comments received during State Water Board hearings on the 2002, 2005, 2011, 2012 and 2013 draft permits, and NPDES industrial storm water discharge permits from other states with well-defined ERA requirements were also considered by the State Water Board.

The State Water Board presumes that one single NAL exceedance for a particular parameter is not a clear indicator that a facility's discharge is out of compliance with the technology-based effluent limitations or receiving water limitations. This presumption recognizes the highly variable nature of storm water discharge and the limited value of a single quarterly grab sample to represent the quality of a facility's storm water discharge for an entire storm event and all other non-sampled storm events. With this presumption, the State Water Board is addressing costly monitoring requirements that do not bring forth valuable compliance and/or water quality information.

2. NALs and NAL Exceedances

a. This General Permit contains two types of NAL exceedances as follows:

Annual NAL exceedance - the Discharger is required to calculate the average annual concentration for each parameter using the results of all sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data), and compare the annual average concentration to the corresponding Annual NAL values in Table 2 of this General Permit. An annual NAL exceedance occurs when the annual average of all the sampling results for a parameter taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2 of this General Permit.

For the purposes of calculating the annual average concentration for each parameter, this General Permit considers any sampling result that are a "non-detect" or less than the method detection limit as a zero (0) value. The reason to use zero (0) values instead of the detected but not quantifiable

value (minimum level or reporting limit) is that these values are very low and are unlikely to contribute to an NAL exceedance. There are statistical methods to include low values when calculations are for numeric criteria and limitations, however, the NALs in this General Permit are approximate values used to provide feedback to the Discharger on site performance, and are not numeric criteria or limitations. Therefore, it is not necessary to include these insignificant values in the calculations for the NALs. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.¹⁴

- i. Instantaneous maximum NAL exceedance - the Discharger is required to compare all sampling and analytical results from each distinct sample (individual or combined) to the corresponding instantaneous maximum NAL values in Table 2 of this General Permit. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

b. Instantaneous maximum NAL analysis

In its June 19, 2006 report, the Blue Ribbon Panel of Experts (Panel) made several specific recommendations for how to set numeric limitations in future industrial storm water general permit(s). For sites not subject to TMDLs, the Panel suggested that the numeric values be based upon industry types or categories, with the recognition that each industry has its own specific water quality issues and financial viability. Furthermore, the Panel concluded:

To establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs. The current industrial permit has not produced such a database for most industrial categories because of inconsistencies in monitoring or compliance with monitoring requirements. The Board needs to reexamine the existing data sources, collect new data as required and for additional water quality parameters (the current permit requires only pH, conductivity, total suspended solids, and either total organic carbon or oil and grease) to establish practical and achievable Numeric Limits.

The Panel suggested an alternative method that would allow the use of the existing Water Board dataset to establish action levels, referred to as the “ranked percentile” method. The Panel recommended:

¹⁴ U.S. EPA. NPDES Storm Water Sampling Guidance Document. Web. July 1992. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of February 4, 2014].

The ranked percentile approach (also a statistical approach) relies on the average cumulative distribution of water quality data for each constituent developed from many water quality samples taken for many events at many locations. The Action Level would then be defined as those concentrations that consistently exceed some percentage of all water quality events (i.e. the 90th percentile). In this case, action would be required at those locations that were consistently in the outer limit (i.e. uppermost 10th percentile) of the distribution of observed effluent qualities from urban runoff.

After performing various data analysis exercises with the Water Board dataset, State Water Board staff concluded that the Water Board dataset is not adequate to calculate instantaneous NAL values using the Panel's recommended method for all of parameters that have annual NAL values based on the U.S. EPA benchmarks. Additionally, public comments on the January 2011 draft of this General Permit suggest that it is problematic to calculate NAL values based on the existing data. Therefore, the Water Board dataset was not used to calculate instantaneous NAL values for all parameters.

However, since all Dischargers regulated under the previous permit were required to sample for TSS and O&G/TOC, State Water Board staff found that the existing dataset for these parameters is of sufficient quality to calculate instantaneous NAL values. State Water Board staff also found that this data was less prone to what appear to be data input errors. The final dataset used to calculate the instantaneous NALs in this General Permit had outlier values that were eliminated from the dataset by using approved test method detection limits ranges. The methods and corresponding method detection limit ranges used to screen outliers are as follows:

- O&G - EPA 413.1 Applicable Range: 5-1,000 mg/L
- O&G - EPA 1664 Applicable Range: 5-1,000 mg/L
- TSS - EPA 160.2 Applicable Range: 4-20,000 mg/L

The intent of the instantaneous maximum NAL is to identify specific drainage areas of concern or episodic sources of pollution in industrial storm water that may indicate inadequate storm water controls and/or water quality impacts. In the effort to add instantaneous NAL exceedances to the ERA process, the State Water Board explored different options for the development of an appropriate value (i.e. percentile approach, benchmarks times a multiplier, confidence intervals). The California Stormwater Quality Association's comments on the previous draft permit included a proposed method for calculating NAL values using a percentile approach. The State Water Board researched and evaluated this methodology and determined it is the most appropriate way to directly compare available electronic sampling data from Dischargers regulated under the previous permit. This percentile approach was used to establish the instantaneous maximum NALs in this General Permit, for discharges to directly compare with sampling results and identify drainage areas of water quality concern.

The percentile approach is a non-parametric approach identified in many statistical textbooks for determining highly suspect values. Highly suspect values are defined as values that exceed the limits of the outer fences of a box plot. Upper limits of the outer fence are calculated by adding three times the inter-quartile range (25th to 75th percentiles) to the upper-end of the inter-quartile range (the 75th percentile). The California Stormwater Quality Association calculated an NAL value of 401 mg/L for TSS using the percentile approach using the Water Board dataset. The State Water Board performed the same analysis with the same Water Board dataset and calculated a slightly different value of 396 mg/L; therefore, the instantaneous maximum NAL value for TSS of 400 mg/L was established. Applying the percentile approach to the existing O&G data results in the instantaneous maximum NAL value for O&G of 25 mg/L.

The State Water Board compared existing sampling data to the instantaneous maximum NAL values and concluded that seven (7) percent of the total samples exceeded the highly suspected value for TSS and 7.8 percent of the total samples exceeded the highly suspected value for O&G. These results suggest that the instantaneous maximum NAL values are adequate to identify drainage areas of concern statewide since they are not regularly exceeded. Using best professional judgment, the State Water Board concludes that an exceedance of these values twice within a reporting year is unlikely to be the result of storm event variability or random BMP implementation problems, and the use of the percentile approach is therefore appropriate.

Due to issues with the ranges of concentrations and the logarithmic nature of pH, statistical methods cannot be applied to pH in the same ways as other parameters. Review of storm water sampling data by the State Water Board and other stakeholders has shown that pH is not typically a parameter of concern for most industrial facilities. Accordingly, a range of pH limits established in Regional Water Board Basin Plans is implemented in this General Permit for the instantaneous maximum NAL values. Most Basin Plans set a water quality objective of 6.0 - 9.0 pH units for water bodies, an exceedance outside the range of 6.0 - 9.0 pH units is consistent with the water quality concerns for pH among Regional Water Boards. An industrial facility with proper BMP implementation is expected to have industrial storm water discharges within the range of 6.0 - 9.0 pH units.

High concentrations of TSS and O&G, or pH values outside the range of 6.0 – 9.0 pH units, in a discharge may be an indicator of potential BMP implementation or receiving water quality concerns with other pollutants with parameters that do not have an instantaneous maximum NAL value. The State Water Board may consider instantaneous maximum NAL values for other parameters in a subsequent reissuance of this General Permit, based on data collected during this General Permit term.

The percentile approach is considered by many stakeholders to be the best method to evaluate BMP performance and general effluent quality in a community or population where the vast majority of the industrial facilities are implementing sufficient pollutant control measures. The Water Board's current

dataset does not provide a way of evaluating actual BMP implementation at each facility when analyzing the data; therefore the monitoring information reported during the previous permit term cannot be linked to compliance with technology-based standards. The State Water Board intends to use data collected during this General Permit term to evaluate the percentile approach, improve the quality of collected data for other parameters, and further develop an understanding of how reported data relates to implemented BMP-control technologies.

Under this General Permit, a Discharger enters Level 1 status and must fulfill the Level 1 status ERA requirements following its first occurrence of any NAL exceedance. Level 2 status ERA requirements follow the second occurrence of an NAL exceedance for the same parameter in a subsequent reporting year. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This General Permit's ERA process is designed to have a well-defined compliance end-point. It is not a violation of this General Permit to exceed the NAL values; it is a violation of the permit, however, to fail to comply with the Level 1 status and Level 2 status ERA requirements in the event of NAL exceedances.

The State Water Board acknowledges that storm water discharge concentrations are often highly variable and dependent upon numerous circumstances such as storm size, the time elapsed since the last storm, seasonal activities, and the time of sample collection. Since there are potential enforcement consequences for failure to comply with this General Permit's ERA process, the State Water Board's intention is to use NAL exceedances to solely require Dischargers with recurring annual NAL exceedances or drainage areas that produce recurring instantaneous maximum NAL exceedances to be subject to the follow-up ERA requirements.

If NALs exceedances do not occur, the State Water Board generally expects that the Discharger has implemented sufficient BMPs to control storm water pollution. When NAL exceedances do occur, however, the potential that the Discharger may not have implemented appropriate and/or sufficient BMPs increases, and the Discharger is required to implement escalating levels of ERAs. If NAL exceedances occur, this General Permit requires Dischargers to evaluate and potentially install additional BMPs, or re-evaluate and improve existing BMPs to be in compliance with this General Permit.

3. Baseline Status

At the beginning of a Discharger's NOI coverage under this General Permit, the Discharger has Baseline status. A Discharger demonstrating compliance with all NALs will remain at Baseline status and is not required to complete Level 1 status and Level 2 status ERA requirements.

If a Discharger has returned to Baseline status (from Level 2 status) and additional NAL exceedances occur, the Discharger goes into Level 1 status, then potentially

Level 2 status. Dischargers do not go directly into Level 2 status from Baseline status.

4. Level 1 Status

Regardless of when an NAL exceedance occurs during Baseline status, a Discharger's status changes from Baseline status to Level 1 status on July 1 of the subsequent reporting year. By October 1 following the commencement of Level 1 status, the Discharger is required to appoint a QISP to assist with the completion of the Level 1 Evaluation. The Level 1 Evaluation must include a review of the facility's SWPPP for compliance with the effluent and receiving water limitations of this General Permit, an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s), and identification of any additional BMPs that will eliminate future exceedances. When conducting the Level 1 Evaluation, a Discharger must ensure that all potential pollutant sources that could be causing or contributing to the NAL exceedance(s) are fully characterized, that the current BMPs are adequately described, that employees responsible for implementing BMPs are appropriately trained, and that internal procedures are in place to track that BMPs are being implemented as designed in the SWPPP. A Discharger is additionally required to evaluate the need for additional BMPs. Level 1 ERAs are designed to provide the Discharger the opportunity to improve existing BMPs or add additional BMPs to comply with the requirements of this General Permit.

By January 1 following commencement of Level 1 status, a Discharger is required to certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP. The Level 1 ERA Report must contain a summary of the Level 1 Evaluation, all new or revised BMPs added to the SWPPP.

In most cases, the State Water Board believes that Level 1 status BMPs will be operationally related rather than structural and, therefore can be implemented without delay. Recognizing that a Discharger should not be penalized for sampling results obtained before implementing BMPs, sampling results for parameters and their corresponding drainage areas that caused the NAL exceedance up to October 1 or the date the BMPs were implemented, whichever is sooner, will not be used for calculating NAL exceedances. Although this General Permit allows up to January 1 to implement Level 1 status BMPs, the State Board has chosen an interim date of October 1 to encourage more timely Level 1 BMP implementation. Dischargers who implement Level 1 BMPs after October 1 may risk obtaining subsequent sampling results that may cause them to go into Level 2 status.

5. Level 2 Status

Level 2 ERAs are required during any subsequent reporting year in which the same parameter(s) has an NAL exceedance (annual average or instantaneous maximum), if this occurs, a Discharger's status changes from Level 1 status to Level 2 status on July 1 of the subsequent reporting year. Dischargers with Level 2 status must further evaluate BMP options for their facility. Dischargers may have to implement additional BMPs, which may include physical, structural, or mechanical devices that

are intended to prevent pollutants from contacting storm water. Examples of such controls include, but are not limited to:

- Enclosing and/or covering outdoor pollutant sources within a building or under a roofed or tarped outdoor area.
- Physically separating the pollutant sources from contact with run-on of uncontaminated storm water.
- Devices that direct contaminated storm water to appropriate treatment BMPs (e.g., discharge to sanitary sewer as allowed by local sewer authority).
- Treatment BMPs including, but not limited to, detention ponds, oil/water separators, sand filters, sediment removal controls, and constructed wetlands.

Dischargers may select the most cost-effective BMPs to control the discharge of pollutants in industrial storm water discharges. Where appropriate, BMPs can be designed and targeted for various pollutant sources (e.g., providing overhead coverage for one potential pollutant while discharging to a detention basin for another source may be the most cost-effective solution).

a. Level 2 ERA Action Plans

The State Water Board acknowledges that there may be circumstances that make it difficult, if not impossible, for a Discharger to immediately implement additional BMPs. For example, it may take time to get a contract for construction in place, obtain necessary building permits, and design and construct the BMPs. Dischargers may also suspect that pollutants are from a non-industrial or natural background source and need time to study their site. A Discharger is required to certify and submit an Action Plan prepared by a QISP via SMARTS by January 1 following the reporting year in which the NAL exceedance that resulted in the Discharger entering Level 2 occurred. The Level 2 ERA Action Plan requires a Discharger to propose actions necessary to complete the Level 2 ERA Technical Report, the demonstrations the Discharger has selected, and propose a time frame for implementation.

If a Discharger changes the QISP assisting with the Level 2 ERA requirements this General Permit requires the Discharger to update the QISP information via SMARTS. Current information on individuals assisting Dischargers with compliance of this General Permit provides the Water Boards with the necessary contact information if there are questions on the submitted documents, and for possible verification of a QISP's certification.

Dischargers are required to address each Level 2 NAL exceedance in an Action Plan. The State Water Board recognizes that Dischargers with Level 2 status may have multiple parameters or facility areas that have Level 2 NAL exceedances and the timing of the exceedances may make it very difficult to address all Level 2 NAL exceedances in one Action Plan. When Level 2 ERA exceedances occur in subsequent reporting years, after an Action Plan is

certified and submitted, a Discharger will need to develop an Action Plan for this new Level 2 NAL exceedance. This General Permit defines new Level 2 NAL exceedances as an exceedance for a new parameter in any drainage area at the facility, or an exceedance for the same parameter being addressed in an existing Action Plan, but where the exceedance occurred in a different drainage area than identified in the existing Action Plan.

b. Level 2 ERA Technical Reports

The Level 2 ERA Technical Report contains three different options that require a Discharger to submit demonstrations showing the cause of the NAL exceedance(s). This General Permit requires a Discharger to appoint a QISP to prepare the Level 2 ERA Technical Reports. The State Water Board acknowledges that there may be cases where a combination of the demonstrations may be appropriate; therefore a Discharger may combine any of the following three demonstration options in their Level 2 ERA Technical Report when appropriate. A Discharger is only required to annually update its Level 2 ERA Technical Report when necessary as defined in Section XII.D.3.c of this General Permit, and is not required to annually re-certify and re-submit the entire Level 2 ERA Technical Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified in Section XII.D.3.c of this General Permit, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

i. Industrial Activity BMPs Demonstration

The Industrial Activity BMPs Demonstration is for the following:

- Dischargers who decided to implement additional BMPs that are expected to eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit, and
- Dischargers who decided to implement additional BMPs that may not eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit.

When preparing the Industrial Activity BMPs Demonstration, the QISP shall identify and evaluate all individual pollutant source(s) associated with industrial activity that are or may be related to an NAL exceedance and all designed, information on the drainage areas associated with the Level 2 NAL exceedances, and installed BMPs that are implemented to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit.

If an Industrial Activity BMPs Demonstration is submitted as the Level 2 ERA Technical Report and the Discharger is able to show reductions in pollutant concentrations below the NALs for four (4) subsequent consecutive QSEs, the Discharger returns to Baseline Status. A Discharger that submits an Industrial Activity BMPs Demonstration but has not installed additional BMPs that are expected to eliminate future NAL exceedance(s) will remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

ii. Non-Industrial Pollutant Source Demonstration

A Non-Industrial Pollutant Source Demonstration is for a Discharger to demonstrate that the pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and additional BMPs at the facility will not contribute to the reduction of pollutant concentrations.

Dischargers including the Non-Industrial Pollutant Demonstration in their Level 2 ERA Technical Report shall have a QISP determine that the sources of non-industrial pollutants in storm water discharges are not from industrial activity or natural background sources within the facility.

Sources of non-industrial pollutants that are discharged separately and are not comingled with storm water associated with industrial activity are not considered subject to this General Permit's requirements. When pollutants from non-industrial sources are comingled with storm water associated with industrial activity, the Discharger is responsible for all the pollutants in the combined discharge unless the technical report clearly demonstrates that the NAL exceedances due to the combined discharge are solely attributable to the non-industrial sources. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. In most cases, the Non-Industrial Pollutant Source Demonstration will contain sampling data and analysis distinguishing the pollutants from non-industrial sources from the pollutants generated by industrial activity.

Once the Level 2 ERA Technical Report, including this demonstration is certified and submitted via SMARTS, the Discharger has satisfied all the requirements necessary for that pollutant for ERA purposes. A Discharger that submits a Non-Industrial Pollutant Demonstration remains with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

iii. Natural Background Pollutant Source Demonstration

The benchmark monitoring schedule in section 6.2.1.2 of the 2008 MSGP allows a Discharger to determine that the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background. A Discharger making this determination is not required to perform corrective

action or additional benchmark monitoring providing that the other 2008 MSGP requirements are met. The 2008 MSGP Fact Sheet requires Dischargers to include in the following in the SWPPP: 1) map(s) showing the reference site location, facility, available land cover information, reference site and test site elevation, available geology and soil information for reference and test sites, photographs showing site vegetation, site reconnaissance survey data and records. This General Permit requires this information to be included in the Natural Background Pollutant Source Demonstration in Section XII.D.2.c.

The Natural Background Pollutant Source Demonstration in this General Permit is for a Discharger that can demonstrate that pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and are solely attributable to the presence of those pollutants in natural background. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. Natural background pollutants include those substances that are naturally occurring in soils or groundwater that have not been disturbed by industrial activities. Natural background pollutants do not include legacy pollutants from earlier activity on a site, or pollutants in run-on from neighboring sources which are not naturally occurring. Dischargers are not required to reduce concentrations for pollutants in the effluent caused by natural background sources if these pollutants concentrations are not increased by industrial activity.

The 2008 MSGP Fact Sheet states that the background concentration of a pollutant in runoff from a non-human impacted reference site in the same watershed must be determined by evaluation of ambient monitoring data or by using information from a peer-reviewed publication or a local, state, or federal government publication specific to runoff or storm water in the immediate region. Studies that are in other geographic areas, or are clearly based on different topographies or soils, are not sufficient to meet this requirement. When such data is not available, and there are no known sources of the pollutant, the background concentration should be assumed to be zero.

In cases where historic monitoring data from a site are used for generating a natural background concentration, and the site is no longer accessible or able to meet reference site acceptability criteria, the Discharger must submit documentation (e.g., historic land use maps) indicating the site did meet reference site criteria (such as indicating the absence of human activity) during the time data collection occurred.

Once the Level 2 ERA Technical Report, including a Natural Background Demonstration meeting the conditions in Section XII.D.2.c of this General Permit is certified and submitted via SMARTS, the Discharger is no longer responsible for the identified background parameters(s) in the corresponding drainage area(s). A Discharger that submits this type of demonstration will

remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

c. **Level 2 ERA Implementation Extension**

The State Water Board recognizes that there may be circumstances that make implementation of all necessary actions required in the Level 2 ERAs by the permitted due dates infeasible. In such circumstances a Discharger may request additional time by submitting a Level 2 ERA Implementation Extension. The Level 2 ERA Implementation Extension will automatically allow Dischargers up to an additional six (6) months to complete the tasks identified in the Level 2 ERA Action Plans while remaining in compliance with this General Permit. The Level 2 ERA Implementation Extension is subject to Regional Water Board review. If additional time is needed beyond the initial six (6) month extension, a second Level 2 ERA Implementation Extension may be submitted but is not effective unless it is approved by the Water Board.

L. Inactive Mining Operations

Inactive mining sites may need coverage under this General Permit. Inactive mining operations are mining sites, or portions of sites, where mineral mining and/or dressing occurred in the past with an identifiable Discharger (owner or operator), but are no longer actively operating. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials. A Discharger has the option to certify and submit via SMARTS that its inactive mining operations meet the conditions for an Inactive Mining Operation Certification in Section XIII of this General Permit. The Discharger must have a SWPPP for an inactive mine signed (wet signature with license number) by a California licensed professional engineer. The Inactive Mining Operation Certification in this General Permit is in lieu of performing certain identified permit requirements. This General Permit requires an annual inspection of an inactive mining site and an annual re-certification of the SWPPP. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer. The Discharger must certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s)

M. Compliance Groups and Compliance Group Leaders

Group Monitoring, as defined in the previous permit, has been eliminated in this General Permit and replaced with a new compliance option called Compliance Groups. The Compliance Group option differs from Group Monitoring as it requires (1) all Dischargers participating in a Compliance Group (Compliance Group Participants) sample two QSEs each year, (2) the Compliance Group Leader to inspect each Participant's facility within each reporting year, (3) the Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders, and (4) the Compliance Group Leader to prepare Consolidated Level 1 ERA Reports, and individual Level 2 ERA Action Plans and Technical Reports. The Compliance Group option is similar to Group Monitoring as it retains a mechanism that

allows Dischargers of the same industry type to comply with this General Permit through shared resources in a cost saving manner.

This General Permit emphasizes sampling and analysis as a means to evaluate BMP performance and overall compliance, and the significantly reduced sampling requirements previously afforded to Group Monitoring Participants (two samples within a five-year period) does not provide the necessary information to achieve these goals. However, a moderate reduction in sampling requirements is included as an incentive for Compliance Group Participants while concurrently requiring sufficient individual facility sampling data to determine compliance. A Compliance Group Leader is required to provide the necessary sampling training and guidance to the Compliance Group Participants. This additional training requirement will increase sampling data quality that will offset the reduced sampling frequency for Compliance Groups.

Participation in Compliance Groups will provide additional cost savings for Dischargers in the preparation of the Consolidated Level 1 ERA Reports, and for Compliance Group Leader assistance in preparing the Level 2 ERA Action Plans and the individual Level 2 ERA Technical Reports. It is likely that many of the pollutant sources causing NAL exceedances, and the corresponding BMP cost evaluation and selection, when appropriate, will overlap for groups of facilities in a similar industry type. When these overlaps occur, a Compliance Group Leader should be able to more efficiently evaluate the pollutant sources and BMP options, and prepare the necessary reports.

The State Water Board believes that it is necessary for Compliance Group Leaders to have a higher level of industrial storm water compliance and training experience than the expectations of a QISP. Many stakeholder comments on this General Permit suggested various certifications to provide this higher level of experience; however, the State Water Board believes a process similar to the Trainer of Record process for the Construction General Permit training program will develop Compliance Group Leaders with the appropriate level of experience to fulfill the necessary qualifications.

The intent of the Compliance Groups is to have only one or a small number of Compliance Groups per industrial sector. The process for becoming a QISP trainer and/or a Compliance Group Leader is purposely similar to the Construction General Permit trainer of record process for consistency within storm water regulatory leaders. The formal process to qualify to conduct trainings for QISPs and/or to be a Compliance Group Leader will include the submittal of a statement of qualifications for review, a review fee, completion of an exam and training specific to this role. For more information see the Construction General Permit trainer of record process: <http://www.casqa.org/TrainingandEducation/ConstructionGeneralPermitTrainingQSDQSPToR/tabid/205/Default.aspx>

After the initial Compliance Group registration, Compliance Group Leaders are required to submit and maintain their list of Compliance Group Participants via SMARTS. There are no additional administrative documents required. The previous permit required group leaders to provide annual group evaluation reports and a letter of intent to continue group monitoring. The State Water Board found these items to be resource intensive and placed an unnecessary administrative burden on group leaders. The

Compliance Group requirements in this General Permit reduces the administrative burden on both the Compliance Group Leaders and Water Board staff.

The State Water Board's intent for the effluent data, BMP selection, cost, and performance information, and other industry specific information provided in Compliance Group reports is for evaluation of sector-specific permitting approaches and the use of NALs in the next reissuance of this General Permit.

N. Annual Evaluation

Federal regulations require NPDES industrial storm water Dischargers to evaluate their facility and SWPPP annually. Typically this requires an inspection of the facility to ensure: (1) the SWPPP site map is up to date, (2) control of all potential pollutant sources is included in the SWPPP, and (3) sampling data and visual observation records are used to evaluate if the proper BMPs are being implemented. As Dischargers are required to conduct monthly visual observation that partially overlap with the actions required by the annual evaluation requirements, Dischargers may perform the annual evaluation inspection concurrent with a monthly visual observation.

O. Annual Report

All Dischargers shall certify and submit via SMARTS an Annual Report no later than July 15 following each reporting year. The reporting requirements for this General Permit's Annual Report are streamlined in comparison to the previous permit. The Annual Report now consists of two primary parts: (1) a compliance checklist indicating which permit requirements were completed and which were not (e.g., a Discharger who completes the required sampling of four QSEs during the reporting year, versus a Discharger who is only able to sample two QSEs during the reporting year), and (2) an explanation for items on the compliance checklist that were determined incomplete by the Discharger. Unlike the previous permit, the Annual Report does not require Dischargers to provide the details of each visual observation (such as name of observer, time of observation, observation summary, corrective actions, etc.) or provide the details of the Annual Comprehensive Site Evaluation. Dischargers, however, continue to be required to retain those records and have them available upon request. The Annual Report is further simplified through the immediate electronic reporting via SMARTS of sampling data and copies of the original laboratory reports instead of such information being included in the Annual Report.

P. Conditional Exclusion - No Exposure Certification (NEC) Requirements

This General Permit's conditional exclusion requirements are similar to the requirements provided in 40 C.F.R. section 122.26(g)(3). Clarifications were added in this General Permit, however, to the types of "storm resistant shelters" and the periods when "temporary shelters" may be used in order to avert regulatory confusion. California does not have operating coal power plants, which are a major contributor to acid rain elsewhere in the United States. California does have nonpoint sources or atmospheric deposition that may locally impact the pH of the rain water, however this is

not categorized as acid rain as referred to by the U.S. EPA for the NEC coverage requirements. The No Exposure Guidance Document¹⁵ developed by the U.S. EPA mentions acid rain as a potential source of contaminants to consider for NEC coverage. The acid rain leachate language was not included in this General Permit's Appendix 2 to clarify that Dischargers may qualify for NEC coverage, even if the facility has metal buildings or structures.

The Discharger shall certify and submit complete PRDs for NEC coverage via SMARTS. Based upon the State Water Board's experience with reissuing and implementing the 2009 Construction General Permit, the transition for existing Dischargers to register under this new General Permit is staff resource intensive. The State Water Board staff is available to assist Dischargers requiring assistance with enrolling under this General Permit, both for NOI coverage and NEC coverage. The State Water Board has also experienced that more time is needed for its staff to assist Dischargers registering for NEC coverage. To provide better customer service to all Dischargers, three months have been added to the NEC coverage PRD submittal schedule for new and existing Dischargers (Section II.B.4 of this General Permit, extending the NEC coverage registration date to October 1, 2015).

Dischargers must annually inspect their facility to ensure continued compliance with NEC requirements, and annually re-certify and submit an NEC via SMARTS. Based on its regulatory experience, the State Water Board has determined that a five-year NEC re-certification period is inadequate. A significant percentage of facilities may revise, expand, or relocate their operations in any given year. Furthermore, a significant percentage of facilities experience turnover of staff knowledgeable of the NEC requirements and limitations. Accordingly, the State Water Board believes that annual NEC evaluation and re-certification requirements are appropriate to continually assure adequate program compliance.

Q. Special Requirements - Plastic Materials

Water Code section 13367 requires the Water Boards to implement measures that control discharges of preproduction plastic from point and nonpoint sources. The State Water Board intends to use this General Permit to regulate discharges of preproduction plastics from areas of facilities that are subject to this General Permit. A Regional Water Board may designate facilities, or areas of facilities, that are not otherwise subject to this General Permit, pursuant to Section XIX.F. For example, a Regional Water Board may designate Plastic Materials handling areas of a transportation facility that are not associated with vehicle maintenance as requiring coverage under this General Permit.

Preproduction plastics used by the plastic manufacturing industry are small in size and have the potential to mobilize in storm water. Preproduction plastic washed into storm water drains can move to waters of the United States where it contributes to the growing problem of plastic debris in inland and coastal waters. Water Code section 13367

¹⁵ U.S. EPA. Guidance Manual for Conditional Exclusion from Storm Water Permitting Based On "No Exposure" of Industrial Activities to Storm Water. Web. June 2000. < <http://www.epa.gov/npdes/pubs/noxguide.pdf>>. [as of January 31, 2014].

outlines five mandatory BMPs that are required for all facilities that handle preproduction plastic. These mandatory BMPs are included in this General Permit.

The State Water Board has received comments regarding the Water Code requirements for Plastics Facilities to install a containment system for on-site storm drain locations that meet 1mm capture and 1-year 1-hour storm flow requirement standards. As a result, this General Permit includes the option under Water Code section 13367 that allows a plastics facility to propose an alternative BMP or suite of BMPs that can meet the same performance and flow requirements as a 1mm capture and 1-year 1-hour storm flow containment system standards. These alternative BMPs are to be submitted to the Regional Water Board for approval. This alternative is intended to allow the facility to develop BMPs that focus on pollution prevention measures that can perform as well as, or better than, the containment system otherwise required by the statute.

The State Water Board also includes two additional containment system alternatives in this General Permit that are considered to be equivalent to, or better than, the 1mm capture and 1-year 1-hour storm flow requirements:

- An alternative allowing plastic facilities to implement a suite of eight BMPs addressing the majority of potential sources of plastic discharges. This suite of BMPs is based on industry and U.S. EPA recommendations and Water Board experience with storm water inspections, violations, and enforcement cases throughout California.
- An alternative allowing a facility to operate in a manner such that all preproduction plastic materials are used indoors and pose no potential threat for discharge off-site. The facility is required to notify the Regional Water Board of the intent to seek this exemption and of any changes to the facility or operations that may disqualify the facility for the exemption. The exemption may be revoked by the Regional Water Board at any time.

Plastics facilities may use preproduction plastic materials that are less than 1mm in size, or produce materials, byproducts, or waste that is smaller than 1mm in size. These small size materials will pass through the 1mm capture containment system required by Water Code section 13367. Plastics facilities with sub-1mm materials must design a containment system to capture the smallest size material onsite with a 1-year 1-hour storm flow requirement, or propose alternative BMPs for Regional Water Board approval that meet the same requirements.

The remaining BMPs required by Water Code section 13367 are consistent with recommendations for handling and clean-up of preproduction plastics in the American Chemistry Council publication, *Operation Clean Sweep* and U.S. EPA's publication *Plastic Pellets in the Aquatic Environment: Sources and Recommendations*. The State Water Board believes that the entire approach in this General Permit for plastic materials is consistent with Water Code section 13367.

R. Regional Water Board Authorities

The Regional Water Boards retain discretionary authority over many issues that may arise from industrial discharges within their respective regions. This General Permit

emphasizes the authority of the Regional Water Boards over specific requirements of this General Permit that do not meet region-specific water quality protection regulatory needs.

S. Special Conditions: Requirements for Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability

1. General

Entities that operate facilities generating storm water associated with industrial activities that is not discharged to waters of the United States are not required to obtain General Permit coverage. Entities that have contacted the Water Boards to inquire what is necessary to avoid permit coverage have received inconsistent guidance. This has resulted in regulatory inconsistency and uncertainty as to whether they are in compliance if their industry operates without General Permit coverage. Depending upon how each Regional Water Board handles “No Discharge” claims, some facilities with advanced containment design may be required to obtain General Permit coverage while other facilities with less advanced containment design may be allowed to operate without General Permit coverage. Some stakeholders have complained that this type of regulatory inconsistency puts some facilities at an economically-competitive disadvantage given the costs associated with permit compliance.

U.S. EPA regulations do not provide a design standard, definition, or guidance as to what constitutes “No Discharge.” Unlike Conditional Exclusion requirements, U.S. EPA regulations do not require an entity to submit technical justification or certification that a facility does not discharge to waters of the United States (U.S.). Therefore entities have previously been allowed to self-determine that their facility does not discharge to water of the U.S. when using any containment design standard. The State Water Board does not have available information showing that most entities have adequately performed hydraulic calculations to determine the frequency of discharge corresponding to their containment controls or have had these hydraulic calculations reviewed or completed by a California licensed professional engineer. Although U.S. EPA makes clear that an unpermitted discharge to waters of the U.S. is a violation of the CWA, this leaves regulatory agencies with the very difficult task of knowing when any given facility discharges in order to carry-out enforcement actions.

In 1998, the Water Code was amended to require entities who are requested by the Water Boards to obtain General Permit coverage, but that have a valid reason to not obtain General Permit coverage, to submit a Notice of Non-Applicability (NONA). (Wat. Code, § 13399.30, subd. (a)(2)). The NONA covers multiple reasons why an entity is not required to be permitted including (1) facility closure, (2) not the legal owner, (3) incorrect SIC code, (4) eligibility for the Conditional Exclusion (No Exposure Certification), and (5) the facility not discharging to water of the U.S. (“No Discharge”). The previous permit contained definitions, requirements, and guidance that entities may reference to determine whether they are eligible to select any of the first four NONA reasons for not obtaining General Permit coverage. However, neither the previous permit nor the Water Code provide definitions, requirements,

and guidance for entities to determine whether they are eligible to indicate “No Discharge” on the NONA as a reason for not obtaining General Permit coverage.

This General Permit addresses and resolves the issues discussed above by establishing consistent, statewide eligibility requirements in Section XX.C for entities submitting NONAs indicating “No Discharge.” When requested by the Water Boards to obtain General Permit coverage, entities must meet these “No Discharge” eligibility requirements or obtain General Permit coverage. The Water Boards retain enforcement authority if a facility subsequently discharges.

2. “No Discharge” Eligibility Requirements

The entity must certify submit in SMARTS a NONA Technical Report signed (wet signature and license number) by a California licensed professional engineer that contains the analysis and details of the containment design supporting the “No Discharge” eligibility determination. Because containment design will require hydraulic calculations, soil permeability analysis, soil stability calculations, appropriate safety factor consideration, and the application of other general engineering principles, state law requires the technical report to be signed (wet signature and license number) by a California licensed professional engineer.

The State Water Board has selected a containment design target that, as properly applied will result in few, if any, discharges. The facility must either be:

- a. Engineered and constructed to contain all storm water associated with industrial activities from discharging to waters of the United States. (The determination of what is a water of the United States can be complicated, and in certain circumstances, a discharge to groundwater that has a direct hydrologic connection to waters of the United States may constitute a discharge to a water of the United States.) Dischargers must base their information upon maximum historic precipitation event data (or series of events) from the nearest rain gauges as provided by the National Oceanic and Atmospheric Administration’s (NOAA) website, or other nearby precipitation data available from other government agencies. At a minimum, Dischargers must ensure that the containment design addresses maximum 1-hour, 24-hour, weekly, monthly, and annual precipitation data for the duration of the exclusion.

Design storm events are generally specified as a one-time expected hydraulic failure over a recurrence of years for a specified storm event. For example, if a design storm standard is a 100 year 24-hour event, then a facility’s containment system designed to contain the maximum volume of water would be expected to fall in 24 hours once every 100 years. Design standards vary dependent upon the regulatory program and the level of protection needed. Since California has considerable variations in climate/topography/soil conditions across the state, the “No Discharge” NONA eligibility requirements have been created so that each facility’s containment design can incorporate unique site specific circumstances to meet the requirement that discharges will not occur based upon past historical precipitation data. Facilities that are not designed to not meet the “No Discharge” eligibility requirements must obtain General Permit coverage.

- b. Located in basins or other physical locations that are not hydrologically connected to waters of the United States.

The State Water Board considered allowing Entities to review United States Army Corp of Engineer maps to determine, without a California licensed professional engineer, whether their facility location is within a basin and/or other physical location that is not hydrologically connected to waters of the United States. The State Water Board believes that this determination can be difficult in some cases, or is likely to be performed incorrectly. In addition, there may be areas of the state that are not hydrologically connected to waters of the United States, but are not on United States Army Corps of Engineer maps. Therefore, all “No Discharge” Technical Reports must be signed (wet signature and license number) by a California licensed professional engineer.

3. Additional Considerations

The “No Discharge” determination does not cover storm water containment systems that transfer industrial pollutants to groundwater. Entities must determine whether designs that incorporate infiltration may discharge to and contaminate groundwater. If there is a threat to groundwater, Entities must contact the Regional Water Boards prior to construction of infiltration design elements.

Entities that have not eliminated all discharges that are subject to General Permit coverage (NOI Coverage or NEC Coverage) are ineligible to submit NONAs indicating “No Discharge.”

ATTACHMENT A

FACILITIES COVERED BY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

1. Facilities Subject To Storm Water Effluent Limitations Guidelines, New Source Performance Standards, or Toxic Pollutant Effluent Standards Found in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N):

Cement Manufacturing (40 C.F.R. Part 411); Feedlots (40 C.F.R. Part 412); Fertilizer Manufacturing (40 C.F.R. Part 418); Petroleum Refining (40 C.F.R. Part 419), Phosphate Manufacturing (40 C.F.R. Part 422), Steam Electric (40 C.F.R. Part 423), Coal Mining (40 C.F.R. Part 434), Mineral Mining and Processing (40 C.F.R. Part 436), Ore Mining and Dressing (40 C.F.R. Part 440), Asphalt Emulsion (40 C.F.R. Part 443), Landfills (40 C.F.R. Part 445), and Airport Deicing (40 C.F.R. Part 449).
2. Manufacturing Facilities:

Facilities with Standard Industrial Classifications (SICs) 20XX through 39XX, 4221 through 4225. (This category combines categories 2 and 10 of the previous general permit.)
3. Oil and Gas/Mining Facilities:

Facilities classified as SICs 10XX through 14XX, including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 Code of Federal Regulations. 434.11(1) because the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Acts authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.
4. Hazardous Waste Treatment, Storage, or Disposal Facilities:

Hazardous waste treatment, storage, or disposal facilities, including any facility operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act.
5. Landfills, Land Application Sites, and Open Dumps:

Landfills, land application sites, and open dumps that receive or have received industrial waste from any facility within any other category of this Attachment; including facilities subject to regulation under Subtitle D of the Federal Resource, Conservation, and Recovery Act, and facilities that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance).
6. Recycling Facilities:

Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.
7. Steam Electric Power Generating Facilities:

Any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.
8. Transportation Facilities:

Facilities with SICs 40XX through 45XX (except 4221-25) and 5171 with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified under this Permit as associated with industrial activity.
9. Sewage or Wastewater Treatment Works:

Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge, that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 Code of Federal Regulations part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

ATTACHMENT B

ACRONYM LIST

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPT	Best Practicable Control Technology Currently Available
CBPELSG	California Board for Professional Engineers, Land Surveyors and Geologists
DWQ	Division of Water Quality
ELGs	Effluent Limitations Guidelines and New Source Performance Standards
ERA	Exceedance Response Action
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NAL	Numeric Action Level
NAICS	North American Industrial Classification System
NEC	No Exposure Certification
NEL	Numeric Effluent Limitation
NOI	Notice of Intent
NONA	Notice of Non Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSWD	Non Storm Water Discharges
O&G	Oil and Grease
PRDs	Permit Registration Documents
QA/QC	Quality Assurance/Quality Control
QISP	Qualified Industrial Storm water Practitioner
QSE	Qualifying Storm Event
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology Based Effluent Limitation
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WQBEL	Water Quality Based Effluent Limitation

ATTACHMENT C

GLOSSARY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

Adoption Date April 1, 2014

Aerial Deposition

Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include but are not limited to: dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere. Deposition is the act of these materials being added to a landform.

Beneficial Uses

As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation, include but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)

As defined by United States Environmental Protection Agency (U.S. EPA), BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)

As defined by U.S. EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)

The method used by permit writers to develop technology-based NPDES permits conditions on a case-by-case basis using all reasonably available and relevant data.

GLOSSARY

Best Management Practices (BMPs)

Scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody

Form used to track sample handling as samples progress from sample collection to the laboratory. The chain of custody is also used to track the resulting analytical data from the laboratory to the client. Chain of custody forms can be obtained from an analytical laboratory upon request.

Debris

Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Detected Not Quantifiable

A sample result that is between the Method Detection Limit (MDL) and the Minimum Level (ML).

Discharger

A person, company, agency, or other entity that is the operator of the industrial facility covered by this General Permit.

Drainage Area

The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effective Date

The date, set by the State Water Resources Control Board (State Water Board), when at least one or more of the General Permit requirements take effect and the previous permit expires. This General Permit requires most of the requirements (such as SMARTs submittals, minimum BMPs, sampling and analysis requirements) to take effect on July 15, 2015.

Effluent

Any discharge of water either to the receiving water or beyond the property boundary controlled by the Discharger.

Effluent Limitation

Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, waters of the contiguous zone, or the ocean.

GLOSSARY

Erosion

The process by which soil particles are detached and transported by the actions of wind, water or gravity.

Erosion Control BMPs

Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Facility

A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Field Measurements

Testing procedures performed in the field with portable field-testing kits or meters.

Good Housekeeping BMPs

BMPs designed to reduce or eliminate the addition of pollutants through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Industrial Materials

Includes, but is not limited to: raw materials, recyclable materials, intermediate products, final products, by product, waste products, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge and that are used, handled, stored, or disposed in relation to a facility's industrial activity.

Method Detection Limit

The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Level

The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Monitoring Implementation Plan

Planning document included in the Storm Water Pollution Prevention Plan (SWPPP). Dischargers are required to record information on the implementation of the monitoring requirements in this General Permit. The MIP should include relevant information on:

GLOSSARY

the Monthly Visual Observation schedule, Sampling Parameters, Representative Sampling Reduction, Sample Frequency Reduction, and Qualified Combined Samples.

Monitoring Requirements

Includes sampling and analysis activities as well as visual observations.

Natural Background

Pollutants including substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from previous activity at a facility, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharge(r)

A facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source as defined in 40 Code of Federal Regulations 122.29, and which has never received a finally effective NPDES permit for discharges at that site. See 40 Code of Federal Regulations 122.2.

Numeric Action Level (NAL) Exceedance

Annual NAL exceedance - the Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data) and compare this to the corresponding Annual NAL values in Table 2. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.¹ An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table 2 (or is outside the NAL pH range);

Instantaneous maximum NAL exceedance - the Discharger shall compare all sampling and analytical results from each distinct sample (individual or composite) to the corresponding Instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

Non Detect

Sample result is less than Method Detection Limit; Analyte being tested cannot be detected by the equipment or method.

¹ U.S. EPA. NPDES Storm Water Sampling Guidance Document. <<http://www.epa.gov/npdes/pubs/owm0093.pdf>>. [as of July 3, 2013]

GLOSSARY

Non-Storm Water Discharges (NSWDs)

Discharges that do not originate from precipitation events. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Numeric Action Level (NAL)

Pollutant concentration levels used to evaluate if best management practices are effective and if additional measures are necessary to control pollutants. NALs are not effluent limits. The exceedance of an NAL is not a permit violation.

Operator

In the context of storm water associated with industrial activity, any party associated with an industrial facility that meets either of the following two criteria:

- a. The party has operational control over the industrial SWPPP and SWPPP specifications, including the ability to make modifications to those plans and specifications
- b. The party has day-to-day operational control of activities at the facility which are necessary to ensure compliance with a SWPPP for the facility or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

pH

Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6.0 and 9.0, with neutral being 7.0.

Plastic Materials

Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site.

Qualified Industrial Storm Water Practitioner (QISP)

Only required once a Discharger reaches Level 1 status, a QISP is the individual assigned to ensure compliance with this General Permit or to assist New Dischargers with determining coverage eligibility for discharges to an impaired water body. A QISP's responsibilities include implementing the SWPPP, performing the Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation), assisting in the preparation of Annual Reports, performing ERAs, and training appropriate Pollution Prevention Team members. The individual must take the appropriate state approved or sponsored training to be qualified. Dischargers shall ensure that the designated QISP is geographically located in an area where they will be able to adequately perform the permit requirements at all of the facilities they represent.

GLOSSARY

Qualifying Storm Event (QSE)

A precipitation event that:

- a. Produces a discharge for at least one drainage area; and
- b. Is preceded by 48 hours with no discharge from any drainage area.

Regional Water Board

Includes the Executive Officer and delegated Regional Water Board staff.

Runoff Control BMPs

Measures used to divert run-on from offsite and runoff within the site.

Run-on

Discharges that originate offsite and flow onto the property of a separate facility or property or, discharges that originate onsite from areas not related to industrial activities and flow onto areas on the property with industrial activity.

Scheduled Facility Operating Hours

The time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

Sediment

Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation

Process of deposition of suspended matter carried by water, wastewater, or other liquids that flow by gravity. Control of sedimentation is accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs

Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. Includes those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (i.e., silt fence, sediment basin, fiber rolls, etc.).

Sheet Flow

Flow of water that occurs overland in areas where there are no defined channels and where the water spreads out over a large area at a uniform depth.

Source

Any facility or building, property, road, or area that causes or contributes to pollutants in storm water.

GLOSSARY

Storm Water

Storm water runoff, snowmelt runoff, and storm water surface runoff and drainage.

Storm Water Discharge Associated With Industrial Activity

The discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant as identified in Attachment A of this General Permit. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 C.F.R. section 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 C.F.R. section 122.

Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 C.F.R. section 122.26(a)(1)(v).

Structural Controls

Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution.

Total Suspended Solids (TSS)

The measure of the suspended solids in a water sample including inorganic substances such as soil particles, organic substances such as algae, aquatic plant/animal waste, and particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

GLOSSARY

Toxicity

The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses, such as impaired reproduction or growth anomalies.

Trade Secret

Information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Turbidity

The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Waters of the United States

Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Water Quality Objectives

Defined in the California Water Code as limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Quality Standards

Consists of beneficial uses, water quality objectives to protect those uses, an antidegradation policy, and policies for implementation. Water quality standards are established in Regional Water Quality Control Plans (Basin Plans) and statewide Water Quality Control Plans. U.S. EPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

ATTACHMENT D

PERMIT REGISTRATION DOCUMENTS (PRDs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

This Attachment provides an example of the information Dischargers are required to submit in the PRDs via the Storm Water Multiple Application and Report Tracking System (SMARTS). The actual PRD requirements are in Section II of this General Permit.

A. Who Must Submit PRDs

All Dischargers that operate facilities as described in Attachment A of this General Permit are subject to either Notice of Intent (NOI) or No Exposure Certification (NEC) Coverage and shall comply with the PRD requirements in this General Permit.

B. Who Is Not Required to Submit PRDs

Dischargers that operate facilities described below are not required to submit PRDs:

1. Facilities that are not described in Attachment A;
2. Facilities that are described in Attachment A but do not have discharges of storm water associated with industrial activity to waters of the United States; or,
3. Facilities that are already covered by an NPDES permit for discharges of storm water associated with industrial activity.

C. Annual Fees for NOI and NEC Coverage

Annual Fees for NOI and NEC coverage are established through regulations adopted by the State Water Board and are subject to change (see California Code of Regulations, title 23, section 2200 et seq.).

D. When and How to Apply

Dischargers proposing to conduct industrial activities subject to this General Permit must electronically certify and submit PRDs via the Storm Water Multiple Application

PERMIT REGISTRATION DOCUMENTS (PRDS)

Reporting and Tracking System (SMARTS)¹ no less than seven (7) days prior to the commencement of industrial activity. Existing Dischargers must submit PRDs for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015.

E. PRD Requirements for NOI Coverage

1. Notice of Intent (NOI) and Signed Electronic Authorization Form.
2. Site Map (Section X.E of this General Permit).
3. Storm Water Pollution Prevention Plan (see Section X of this General Permit).

F. Description of PRDs for NOI Coverage

1. The Notice of Intent (NOI) requires the following information:

- a. Operator/Owner Information

Operator/Owner Company or Organization Name
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City/State/Zip
 Phone (e.g. 999-999-9999)
 E-mail (e.g. abc@xyz.com)
 Federal Tax ID

- b. Facility Information

Facility Name
 WDID Number (if applicable)
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City
 County
 Phone (e.g. 999-999-9999)

¹ The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <<https://smarts.waterboards.ca.gov>>. [as of June 26, 2013].

PERMIT REGISTRATION DOCUMENTS (PRDS)

Emergency Phone (e.g. 999-999-9999)
 E-mail (abc@xyz.com)
 State/Zip CA
 Total Site Size (Acres)
 Latitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
 Longitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
 Total Percentage Site Imperviousness Area of Facility (Acres)
 Total Areas of Industrial Activities and Materials Exposed to Precipitation
 Primary SIC Code
 Secondary SIC Code
 Tertiary SIC Code
 Regional Water Board

c. Billing Information

Billing Name
 Contact First Name
 Contact Last Name
 Title
 Street Address
 Address Line 2
 City/State/Zip
 Phone (e.g. 999-999-9999)
 E-mail (e.g. abc@xyz.com)

d. Receiving Water Information

Does your facility's storm water flow directly or indirectly into waters of the US such as river, lake, ocean, etc. (check box for directly or indirectly)

- i. Indirectly to waters of the US
- ii. Storm drain system - Enter owner's name:
- iii. Directly to waters of the US (e.g., river, lake, creek, stream, bay, ocean, etc.)
- iv. Name of the receiving water: _____

PERMIT REGISTRATION DOCUMENTS (PRDS)

2. The Site Map(s) shall include the following Information:
 - a. The facility boundary;
 - b. Storm water drainage areas within the facility boundary;
 - c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;
 - d. On-facility surface water bodies;
 - e. Areas of soil erosion;
 - f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
 - g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized Non-Storm Water Discharges (NSWDs);
 - h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
 - i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);
 - j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
 - k. Locations where materials are directly exposed to precipitation;
 - l. Locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
 - m. Areas of industrial activity subject to this General Permit;
 - n. All storage areas and storage tanks;
 - o. Shipping and receiving areas;
 - p. Fueling areas;

PERMIT REGISTRATION DOCUMENTS (PRDS)

- q. Vehicle and equipment storage/maintenance areas;
 - r. Material handling and processing areas;
 - s. Waste treatment and disposal areas;
 - t. Dust or particulate generating areas;
 - u. Cleaning and material reuse areas; and,
 - v. Any other areas of industrial activity which may have potential pollutant sources.
3. The Storm Water Pollution Prevention Plan (SWPPP) must be prepared in accordance with Section X of this General Permit.
 4. A NOI Certification by the Discharger that all PRDs submitted are correct and true.
 5. SMARTS Electronic Authorization Form (Signed by any user authorized to certify and submit data electronically).

G. PRD Requirements for NEC Coverage

1. No Exposure Certification and Signed Electronic Authorization Form.
2. No Exposure Certification Checklist Consistent with Requirements in Section XVII.F.2 of this General Permit.
3. Current Site Map Consistent with Requirements in Section X.E of this General Permit.

H. Description of PRDs for NEC Coverage

1. The No Exposure Certification requires the following information:
 - a. Operator/Owner Information
 - Operator/Owner Name
 - Contact First Name
 - Contact Last Name
 - Title

PERMIT REGISTRATION DOCUMENTS (PRDS)

- Street Address
Address Line 2
City/State/Zip
Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
Federal Tax ID
- b. Facility Information
- Facility Name
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City
County
Phone Ex (999-999-9999)
Emergency Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Percent of Site Imperviousness (%)
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board
- c. Billing Information
- Billing Name (if different than Operator/Owner)
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone E.g. (999-999-9999)
E-mail (e.g. abc@xyz.com)
- d. SMARTS Electronic Authorization Form - Signed by any user authorized to certify and submit data electronically.

PERMIT REGISTRATION DOCUMENTS (PRDS)

- e. Certification by the Discharger that all PRDs submitted are correct and true and that the conditions of no-exposure have been met.
2. The NEC Checklist (Section XVII.F.2 of this General Permit) must be prepared to demonstrate that, based upon a facility inspection and evaluation, none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:
 - a. Activities such as using, storing, or cleaning industrial machinery or equipment, and areas with materials or residuals from these activities;
 - b. Materials or residuals on the ground or in storm water inlets from spills/leaks;
 - c. Materials or products from past industrial activity;
 - d. Material handling equipment (except adequately maintained vehicles);
 - e. Materials or products during loading/unloading or transporting activities;
 - f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
 - g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
 - h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
 - i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters). Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,
 - j. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.
 3. The Site Map(s) shall include the following information (see Section X.E of this General Permit):
 - a. The facility boundary;
 - b. Storm water drainage areas within the facility boundary;
 - c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

PERMIT REGISTRATION DOCUMENTS (PRDS)

- d. On-facility surface water bodies;
- e. Areas of soil erosion;
- f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);
- g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;
- h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;
- i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);
- j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;
- k. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;
- l. Areas of industrial activity subject to this General Permit;
- m. All storage areas and storage tanks;
- n. Shipping and receiving areas;
- o. Fueling areas;
- p. Vehicle and equipment storage/maintenance areas;
- q. Material handling and processing areas;
- r. Waste treatment and disposal areas;
- s. Dust or particulate generating areas;
- t. Cleaning and material reuse areas; and,
- u. Any other areas of industrial activity which may have potential pollutant sources.

PERMIT REGISTRATION DOCUMENTS (PRDS)**I. Obtaining Coverage**

To obtain coverage under this General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

J. Additional Information

The Water Board may require the submittal of additional information in SMARTS if required to determine the appropriate fee for the facility as specified by the fee regulations.

K. Questions

If you have any questions on completing the PRDs or about SMARTS, please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT E

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

The following table contains a list of Regional Water Board adopted and/or U.S. EPA established/approved TMDLs, as of the adoption date of this General Permit, that are applicable to industrial storm water Dischargers. TMDLs adopted/established after the effective date of the General Permit may, at the Water Boards discretion, be included in this General Permit. This General Permit may be reopened to amend TMDL-specific permit requirements in this Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

Water Body	Pollutant
<u>San Francisco Bay Regional Water Quality Control Board</u>	
Napa River	Sediment
Sonoma Creek	Sediment
<u>Los Angeles Regional Water Quality Control Board</u>	
Santa Clara River Reach 3	Chloride
Santa Clara River	Nutrients
Los Angeles River	Metals
Los Angeles River	Nutrients
San Gabriel River	Metals and Selenium
Santa Monica Bay	Nearshore Debris
Machado Lake	Nutrient
Harbor Beaches of Ventura	Bacteria
Ballona Creek	Metals
Ballona Creek Estuary	Toxic Pollutants
Los Angeles Harbor	Bacteria
Marina del Rey Back Basins	Bacteria
Santa Clara River	Bacteria
Walker Creek,	Mercury
Oxnard Drain No. 3	Pesticides, PCBs ¹ and Sediment Toxicity
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria
Los Angeles and Long Beach Harbors	Toxic and Metals

¹ Polychlorinated biphenyls

**LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO
INDUSTRIAL STORM WATER DISCHARGERS**






Los Angeles Area Lakes	Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs
Santa Monica Bay	DDTs and PCBs
Machado Lake	Toxics
Colorado Lagoon	Pesticides, Polycyclic aromatic hydrocarbons, PCBs, and Metals
Calleguas Creek Watershed	Salts
Calleguas Creek Watershed	Metals and Selenium
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria
Marina Del Rey Harbor-Back Basins	Copper, Lead, Zinc, and Chlordane, and Total PCBs
Los Cerritos Channel	Metals
<u>Santa Ana Regional Water Quality Control Board</u>	
San Diego Creek and Newport Bay	Toxic Pollutants
<u>San Diego Regional Water Quality Control Board</u>	
Chollas Creek	Diazinon
Chollas Creek	Copper, Lead, and Zinc
Los Peñasquitos Lagoon	Sediment
Rainbow Creek	Total Nitrogen and Total Phosphorus
Shelter Island Yacht Basin	Dissolved Copper
Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in SD Bay	Indicator Bacteria
Twenty Beaches and Creeks	Indicator Bacteria

ATTACHMENT F

EFFLUENT LIMITATION GUIDELINES (ELGs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following Parts of federal regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) contain ELGs approved by US EPA for specific categories of industrial storm water discharges:

Point Source Category	ELGs ¹
Part 411 - Cement Manufacturing	 411.pdf
Part 418 - Fertilizer Manufacturing	 418.pdf
Part 419 - Petroleum Refining	 419.pdf
Part 422 - Phosphate Manufacturing	 422.pdf
Part 423 - Steam Electric Power Generating	 423.pdf

¹ The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

Point Source Category	ELGs ²
Part 429 - Wetting of logs at wet deck storage areas	 429.pdf
Part 434 - Coal Mining	 434.pdf
Part 436 - Mineral Mining And Processing	 436.pdf
Part 440 - Ore Mining And Dressing	 440.pdf
Part 443 - Paving And Roofing Materials (Tars And Asphalt)	 443.pdf
Part 445 - Landfills	 445.pdf
Part 449 - Airport Deicing	 449.pdf

² The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

New Source Performance Standards

New source performance standards (NSPS) represent the best available demonstrated control technology standards. US EPA has established NSPS guidelines for the industries found in the Table below. The intent of NSPS guidelines is to set effluent limitations that represent state-of-the-art treatment technology for new sources.³

Table 1 - Storm Water Specific NSPS Effluent Limitation Guidelines

Regulated Discharge	40 CFR Section	Multi Sector General Permit Sector	NSPS	Date New Source Data Established
Discharge resulting from spray down or intentional wetting of logs as wet deck storage areas	Part 429, Subpart I	A	Yes	1/26/81
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished products, by-products or waste products (SIC 2874)	Part 418, Subpart A	C	Yes	4/8/74
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D	Yes	7/28/75
Runoff from materials storage piles at cement manufacturing facilities	Part 411, Subpart C	E	Yes	2/20/74
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, D	J	No	N/A
Runoff from hazardous waste and non-hazardous waste landfills	Part 445, Subparts A and B	K, L	Yes	2/2/00
Runoff from coal storage piles at steam electric generating facilities	Part 423	O	Yes	11/19/82 & 10/8/74
Discharges from primary airports with over 1,000 annual jet departures that conduct deicing operations.	Part 449, Subpart A	S	Yes	NA

³ New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced: (1) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (2) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal as defined in 40 C.F.R section 122.26.

ATTACHMENT G

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

A. Areas of Special Biological Significance (ASBS)

1. ASBS are defined in the California Ocean Plan as “those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.”
2. The California Ocean Plan prohibits the discharge of waste to ASBS.
3. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.
4. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (amended by Resolution 2012-0031 on June 19, 2012) which contained a general exception to the California Ocean Plan for discharges of storm water and non-point sources (ASBS Exception). This resolution also contains the Special Protections that are to be implemented for direct discharges to ASBS. Resolution 2012-0012 is hereby incorporated by reference and its requirements must be complied with by industrial storm water Dischargers discharging directly to ASBS.
5. This General Permit requires Dischargers who have been granted an Ocean Plan exception for discharges to ASBS to comply with the requirements contained in the Special Protections. These requirements are contained below.

B. ASBS Non-Storm Water Discharges

1. The term “ASBS Non-Storm Water Discharges” means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not comprised entirely of storm water.
2. Only the following ASBS Non-Storm Water Discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. Discharges associated with emergency fire fighting operations.
 - b. Foundation and footing drains.
 - c. Water from crawl space or basement pumps.
 - d. Hillside dewatering.
 - e. Naturally occurring groundwater seepage via a storm drain.
 - f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.
3. Authorized ASBS Non- Storm Water Discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.
 4. At the San Clemente Island ASBS, discharges incidental to military training and research, development, test, and evaluation operations are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.
 5. At the San Nicolas Island and Begg Rock ASBS, discharges incidental to military research, development, testing, and evaluation of, and training with, guided missile and other weapons systems, fleet training exercises, small-scale amphibious warfare training, and special warfare training are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

C. ASBS Compliance Plan

1. State Water Board Resolution 2012-0012 grants an exception to the Ocean Plan's prohibition on discharges to ASBS (ASBS Exception) to applicants who were identified as Dischargers of industrial storm water to ASBS (ASBS Dischargers). Each ASBS Discharger shall specifically address the prohibition of ASBS Non-Storm Water Discharges and the requirement to maintain natural water quality for industrial storm water discharges to an ASBS in an ASBS Compliance Plan to be included in the ASBS Discharger's SWPPP. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board. The ASBS Compliance Plan shall include:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. A map of surface drainage of storm water runoff, showing areas of sheet runoff and priority discharges, and a description of any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified as requiring installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.
- b. A description of the measures by which all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.
- c. A description of how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the Discharger can document to the satisfaction of the Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:
 - 1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
 - 2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

The baseline date for the reduction is March 20, 2012 (the effective date of the ASBS Exception), except for those structural BMPs installed between January 1, 2005 and the adoption of these special protections. The reductions must be achieved and documented by March 20, 2018.
- d. A description of how the ASBS Discharger will address erosion and the prevention of anthropogenic sedimentation in the ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.
- e. A description of the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, ASBS Dischargers must first consider using LID practices to infiltrate, use, or evapotranspiration storm water runoff on-site. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

D. Reporting

If the results of the receiving water monitoring described in Section F. below (Sampling and Analysis Requirements) indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the ASBS Discharger shall submit a report to the State Water Board within 30 days of receiving the results.

1. The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.
2. The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWPPP for future implementation, and any additional BMPs that may be added to the SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.
3. Within 30 days of the approval of the report by the Executive Director, the ASBS Discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.
4. As long as the ASBS Discharger has complied with the procedures described above and is implementing the revised SWPPP, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.
5. Compliance with this section does not excuse violations of any term, prohibition, or special condition contained in the Special Protections of the ASBS Exception.

E. Compliance Schedule

1. As of March 20, 2012, all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flow) were effectively prohibited.
2. By September 20, 2013, the Discharger shall submit a draft written ASBS Compliance Plan to the Executive Director that describes its strategy to comply with these special conditions, including the requirement to maintain natural water

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these special conditions for inclusion in the Discharger's SWPPP.

3. By September 20, 2014, the Discharger shall submit the final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring.
4. By September 20, 2013, any non-structural controls that are necessary to comply with these special conditions shall be implemented.
5. By March 20, 2018, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.
6. By March 20, 2018, all Dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Flowchart at the end of this Attachment.
7. The Executive Director may only authorize additional time to comply with the special conditions 5 and 6, above if good cause exists to do so. Good cause means a physical impossibility or lack of funding

If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in 5. or 6. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of these requirements. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
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- a. for municipalities, a demonstration of significant hardship to Discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the Discharger's jurisdictional area, and the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or
- b. for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

F. Additional Requirements – Waterfront and Marine Operations

In addition to the above provisions, a Discharger with waterfront and marine operations shall comply with the following:

- 1. For discharges related to waterfront and marine operations, the Discharger shall develop a Waterfront and Marine Operations Management Plan (Waterfront Plan). This plan shall contain appropriate Management Measures/Practices to address nonpoint source pollutant discharges to the affected ASBS.
 - a. The Waterfront Plan shall contain appropriate Management Measures/Practices for any waste discharges associated with the operation and maintenance of vessels, moorings, piers, launch ramps, and cleaning stations in order to ensure that beneficial uses are protected and natural water quality is maintained in the affected ASBS.
 - b. For discharges from marinas and recreational boating activities, the Waterfront Plan shall include appropriate Management Measures, described in The Plan for California's Nonpoint Source Pollution Control Program, for marinas and recreational boating, or equivalent practices, to ensure that nonpoint source pollutant discharges do not alter natural water quality in the affected ASBS.
 - c. The Waterfront Plan shall include Management Practices to address public education and outreach to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The management practices shall include appropriate signage, or similar measures, to inform the public of the ASBS restrictions and to identify the ASBS boundaries.
 - d. The Waterfront Plan shall include Management Practices to address the prohibition against trash discharges to ASBS. The Management Practices shall include the provision of adequate trash receptacles for marine recreation areas, including parking areas, launch ramps, and docks. The plan shall also include appropriate Management Practices to ensure that the receptacles are

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS**

- adequately maintained and secured in order to prevent trash discharges into the ASBS. Appropriate Management Practices include covering the trash receptacles to prevent trash from being windblown, staking or securing the trash receptacles so they don't tip over, and periodically emptying the receptacles to prevent overflow.
- e. The Discharger shall submit its Waterfront Plan to the State Water Board Executive Director by September 20, 2012. The Waterfront Plan is subject to approval by the State Water Board Executive Director. The plan must be fully implemented within by September 20, 2013.
2. The discharge of chlorine, soaps, petroleum, other chemical contaminants, trash, fish offal, or human sewage to ASBS is prohibited. Sinks and fish cleaning stations are point source discharges of wastes and are prohibited from discharging into ASBS. Anthropogenic accumulations of discarded fouling organisms on the sea floor must be minimized.
 3. Limited-term activities, such as the repair, renovation, or maintenance of waterfront facilities, including, but not limited to, piers, docks, moorings, and breakwaters, are authorized only in accordance with Chapter III.E.2 of the Ocean Plan.
 4. If the Discharger anticipates that the Discharger will fail to fully implement the approved Waterfront Plan within the 18 month deadline, the Discharger shall submit a technical report as soon as practicable to the Executive Director. The technical report shall contain reasons for failing to meet the deadline and propose a revised schedule to fully implement the plan.
 5. The State Water Board may, for good cause, authorize additional time to comply with the Waterfront Plan. Good cause means a physical impossibility or lack of funding.

If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in Section F.1.e above. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Attachment. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality. The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- a. a demonstration of significant hardship by showing that the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate.
- b. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

G. Sampling and Analysis Requirements

1. Monitoring is mandatory for all ASBS Dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (1) Core Discharge Monitoring and (2) Ocean Receiving Water Monitoring (see Sections H. and I. below). The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).
2. Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notifying the Executive Director that hazardous conditions prevail.
3. Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

H. Core Discharge Monitoring Program

1. General sampling requirements for timing and storm size:

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples as described in Section I. below.

2. Runoff flow measurements

- a. For industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
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- measured or calculated, using a method acceptable to and approved by the Executive Director.
- b. This will be reported annually for each precipitation season to the Executive Director.
3. Runoff samples – storm events
 - a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width:
 - 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and 2) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.
 - b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:
 - 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and
 - 2) samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates); and
 - 3) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.
 - 4) if an ASBS Discharger has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).
 - c. For an applicant not participating in a regional integrated monitoring program [see below in Section I.3.] in addition to the sampling requirements in Section H.3.a. and b. above, a minimum of the two largest outfalls or 20 percent of the

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

- d. The Executive Director may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

I. Ocean Receiving Water and Reference Area Monitoring Program

1. In addition to performing the Core Discharge Monitoring Program in Section H. above, all ASBS Dischargers must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, ASBS Dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.
2. Individual Monitoring Program: The requirements listed below are for those ASBS Dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:
 - a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in Section H.3. above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm), and during (or immediately after) the same storm (post-storm). Post-storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).
- b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents (provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.
 - c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.
 - d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.
 - e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the ASBS Discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.
 - f. The monitoring requirements of the Individual Monitoring Program in this Section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point

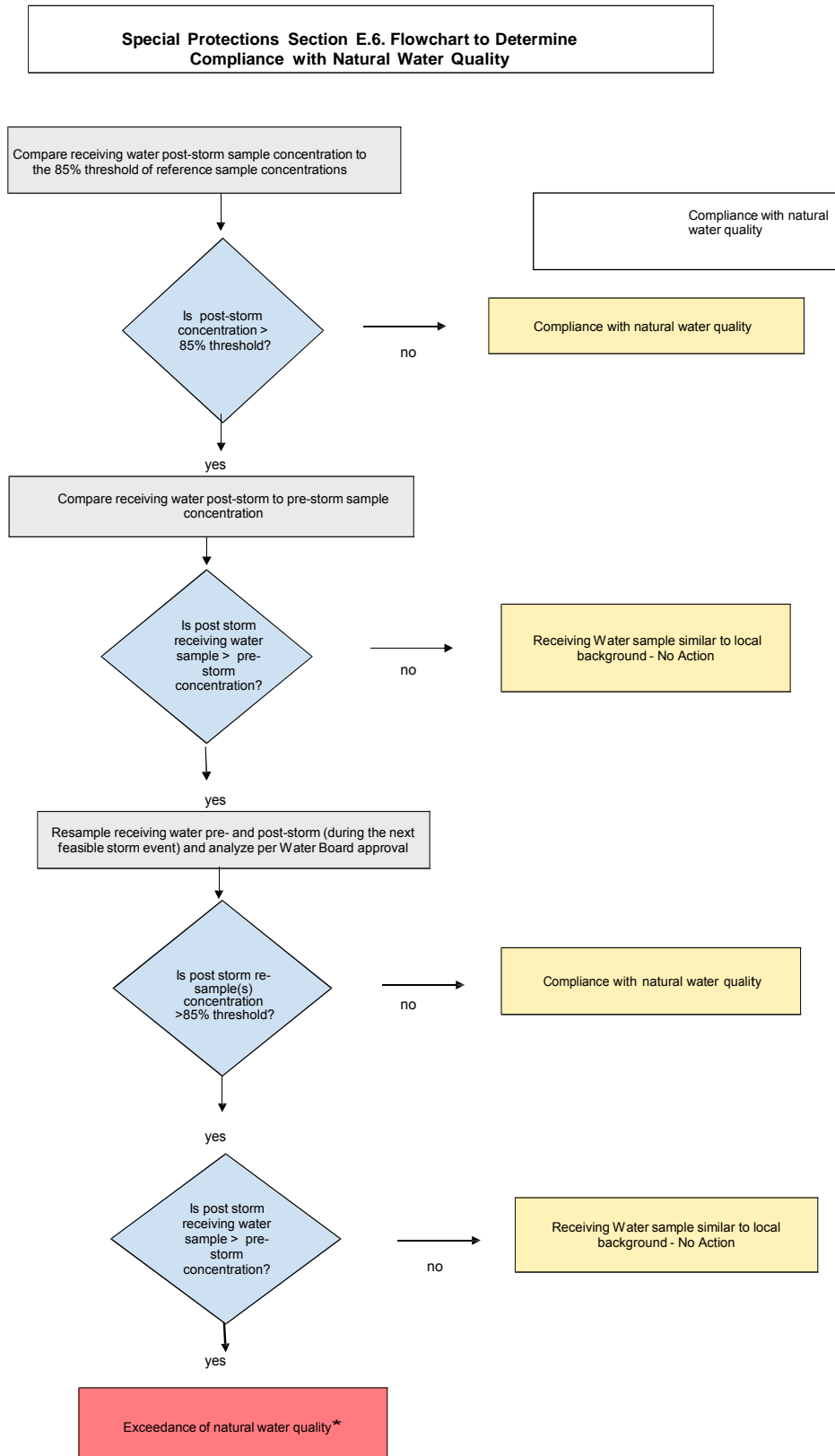
REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

- after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.
3. Regional Integrated Monitoring Program: ASBS Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section I.2.) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.
 - a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional integrated monitoring program, the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
 - b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than 18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate

**REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN
OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS**

- storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.
- c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS Dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.
 - d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS



* When an exceedance of natural water quality occurs, the Discharger must comply with Section D. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	Mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(Excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT H

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

For more detailed guidance, Dischargers should refer to the U.S. EPA's "Industrial Stormwater Monitoring and Sampling Guide," dated March 2009, available at: http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf and the "NPDES Storm Water Sampling Guidance Document," dated July 1992, available at: <http://www.epa.gov/npdes/pubs/owm0093.pdf>.

1. Identify the sampling parameters required to be tested and the number of storm water discharge points that will be sampled. Request the analytical testing laboratory to provide the appropriate number and type of sample containers, sample container labels, blank chain of custody forms, and sample preservation instructions.
2. Determine how samples will be transported to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The Discharger may either deliver the samples to the laboratory, arrange for the laboratory to pick up the samples, or overnight ship the samples to the laboratory. All sample analysis shall be done in accordance with 40 Code of Federal Regulations part 136. Samples for pH have a holding time of 15 minutes.¹
3. Qualified Combined Samples shall be combined by the laboratory and not by the Discharger. Sample bottles must be appropriately labeled to instruct the laboratory on which samples to combine.
4. Unless the Discharger can provide flow weighted information, all combined samples shall be volume weighted.
5. For grab samples, use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers may contaminate samples.
6. For automatic samplers that are not compatible with bottles provided by the laboratory, the Discharger is required to send the sample container included with the automatic sampler to the laboratory for analysis.

¹ 40 C.F.R. section 136.3, Table II - Required Containers, Preservation Techniques, and Holding Times.

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

7. The Discharger can only use automatic sampling device to sample parameters that the device is designed to. For pH, Dischargers can only use automatic sampling devices with the ability to read pH within 15 minutes of sample collection.
8. The Discharger is prohibited from using an automatic sampling device for Oil and Grease, unless the automatic sampling device is specifically designed to sample for Oil and Grease.
9. To prevent contamination, do not touch inside of sample container or cap or put anything into the sample containers before collecting storm water samples.
10. Do not overfill sample containers. Overfilling can change the analytical results.
11. Tightly screw on the cap of each sample container without stripping the threads of the cap.
12. Complete and attach a label for each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.
13. Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into shipping containers. Samples should be kept as close to 4 degrees Celsius (39 degrees Fahrenheit) as possible until arriving to the laboratory. Do not freeze samples.
14. Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the Discharger's name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.
15. Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.
16. Dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the sample protocols and laboratory practices.
17. Refer to Table 1 in the General Permit for test methods, detection limits, and reporting units.
18. All sampling and sample preservation shall be in accordance with 40 Code of Federal Regulations part 136 and the current edition of "Standard Methods for

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

the Examination of Water and Wastewater” (American Public Health Association). All monitoring instruments and equipment (including Discharger field instruments for measuring pH or specific conductance if identified as an additional sampling parameter) shall be calibrated and maintained in accordance with manufacturers’ specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to approved test procedures under 40 Code of Federal Regulations part 136, unless other test procedures have been specified by the Regional Water Quality Control Board. All metals shall be reported as total metals. Dischargers may conduct their own field analysis of pH (or specific conductance if identified as an additional sampling parameter) if the Discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis. With the exception of field analysis conducted by Dischargers for pH (or specific conductance if identified as an additional sampling parameter), all analyses shall be sent to and conducted at a laboratory certified for such analyses by the California Department of Public Health. Dischargers are required to report to the Water Board any sampling data collected more frequently than required in this General Permit (Section XXI.J.2)

APPENDIX 1

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

FACILITY NAME: _____

Waste Discharge Identification (WDID) #: _____

	FACILITY CONTACT	Consultant/Qualified Industrial Storm Water Practitioner (QISP)
Name		
Title		
Company		
Street Address		
City, State		
Zip		

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification (Section II.A)			
Pollution Prevention Team (Section X.D.1)			
Existing Facility Plans (Section X.D.2)			
Site Map(s) (Section X.E)			
Facility boundaries (Section X.E.3.a)			
Drainage areas (Section X.E.3.a)			
Direction of flow (Section X.E.3.a)			
On-facility water bodies (Section X.E.3.a)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Areas of soil erosion (Section X.E.3.a)			
Nearby water bodies (Section X.E.3.a)			
Municipal storm drain inlets (Section X.E.3.a)			
Points of discharge (Section X.E.3.b)			
Sampling Locations (Section X.E.3.b)			
Structural control measures (Section X.E.3.c)			
Impervious areas (Section X.E.3.d)			
Location of Directly Exposed Materials (Section X.E.3.e)			
Locations of significant spills and leaks (Section X.E.3.e)			
Areas of Industrial Activity (Section X.E.3.f)			
Areas of industrial activity (Section X.E.3.f)			
Storage areas/storage tanks (Section X.E.3.f)			
Shipping and receiving areas (Section X.E.3.f)			
Fueling areas (Section X.E.3.f)			
Vehicle and equipment storage/maintenance (Section X.E.3.f)			
Material handling/processing (Section X.E.3.f)			
Waste treatment/disposal (Section X.E.3.f)			
Dust or particulate generation (Section X.E.3.f)			
Cleaning and material reuse (Section X.E.3.f)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Other areas of industrial activities (Section X.E.3.f)			
List of Industrial Materials (Section X.F)			
Storage location			
Quantity			
Frequency			
Receiving and shipping location			
Quantity			
Frequency			
Handling location			
Quantity			
Frequency			
Potential Pollution Sources (Section X.G)			
Description of Potential Pollution Sources (Section X.G.1)			
Industrial processes (Section X.G.1.a)			
Material handling and storage areas (Section X.G.1.b)			
Dust & particulate generating activities (Section X.G.1.c)			
Significant spills and leaks (Section X.G.1.d)			
Non-storm water discharges (Section X.G.1.e)			
Erodible surfaces (Section X.G.1.f)			
Assessment of Potential Pollutant Sources (Section X.G.2)			
Narrative assessment of likely sources of pollutants (Section X.G.2.a)			
Narrative assessment of likely pollutants present in storm water discharges (Section X.G.2.a)			
Identification of additional BMPs Section X.G.2.b)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Identification of drainage areas with no exposure (Section X.G.2.c)			
Identification of additional parameters (Section X.G.2.d)			
Storm Water Best Management Practices (Section X.H)			
Minimum BMPs (Section X.H.1)			
Good housekeeping (Section X.H.1.a)			
Preventative maintenance (Section X.H.1.b)			
Spill response (Section X.H.1.c)			
Material handling and waste management (Section X.H.1.d)			
Erosion and sediment controls (Section X.H.1.e)			
Employee training program (Section X.H.1.f)			
Quality assurance and record keeping (Section X.H.1.g)			
Advanced BMPs (Section X.H.2)			
Implement advanced BMPs at the facility (Section X.H.2.a)			
Exposure Minimization BMPs (Section X.H.2.b.i)			
Storm Water containment and discharge reduction BMPS (Section X.H.2.b.ii)			
Treatment Control BMPs (Section X.H.2.b.iii)			
Other advance BMPs (Section X.H.2.b.iv)			
Temporary Suspension of Activities (Section X.H.3)			
BMPs necessary for stabilization of the facility (Section X.H.3)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
BMP Descriptions (Section X.H.4)			
Pollutant that a BMP reduces or prevents (Section X.H.4.a.i)			
Frequency of BMP implementation (Section X.H.4.a.ii)			
Location of BMP (Section X.H.4.a.iii)			
Person implementing BMP (Section X.H.4.a.iv)			
Procedures/maintenance/ instructions for BMP implementation (Section X.H.4.a.v)			
Equipment and tools for BMP implementation (Section X.H.4.a.vi)			
BMPs needing more frequent inspections (Section X.H.4.a.vii)			
Minimum BMP/applicable advanced BMPs not implemented at the facility (Section X.H.4.b)			
BMPs implemented in lieu of minimum or applicable advanced BMPs (Section X.H.4.c)			
BMP Summary Table (Section X.H.5)			
Monitoring Implementation Plan (Section X.I)			
Team members assisting in developing the MIP (Section X.I.1)			
Summary of visual observation procedures, locations, and details (Section X.I.2)			
Justifications if applicable for: Alternative discharge locations, Representative Sampling Reduction or, Qualified Combined Samples (Section X.I.3)			
Procedures for field instrument calibration (Section X.I.4)			

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
CHECKLIST**

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Example of Chain of Custody (Section X.I.5)			
Annual Comprehensive Facility Compliance Evaluation (Section XV)			
Review of all visual inspection and monitoring records and sampling and analysis results conducted during the previous reporting year (Section XV.A)			
Visual inspection of all areas of industrial activity and associated potential pollutant sources (Section XV.B)			
Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials in accordance with the definitions in Section XVII (Section XV.C)			
Visual inspection of equipment needed to implement the BMPs (Section XV.D)			
Visual inspection of any structural and/or treatment control BMPs (Section XV.E)			
Review and assessment of all BMPs for each area of industrial activity and associated potential pollutant sources (Section XV.F)			
Assessment of other factors needed to complete the information described in Section XVI.B (Section XV.G)			

APPENDIX 2

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

This Attachment provides general guidance instructions and guidance for obtaining NEC coverage. The actual NEC requirements are primarily contained in Section XVII of this General Permit.

A. INSTRUCTIONS:

Who May File for NEC Coverage

Sections 301 and 402(p) of the Clean Water Act (CWA), and Sections 1311 and 1342(p) of 33 United States Code prohibit the discharge of storm water associated with industrial activity to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is “conditionally excluded” for discharges of storm water associated with industrial activities (industrial storm water discharges) if the Discharger can certify that a condition of “No Exposure” exists at the industrial facility. A condition of “No Exposure” means that a Discharger’s industrial activities and materials are not exposed to storm water. Industrial storm water discharges from construction and land disturbance activities are ineligible for the NEC coverage. Dischargers who file valid NECs in accordance with these instructions are not required to implement Best Available Technology Economically Achievable /Best Conventional Pollutant Control Technology and comply with the Storm Water Pollution Prevention Plan (SWPPP) and monitoring requirements of this General Permit.

Obtaining and Maintaining NEC Coverage

A Discharger must electronically certify and submit NEC Permit Registration Documents (PRDs) via State Water Resources Control Board’s (State Water Board’s) Storm Water Multi-Application and Report Tracking System (SMARTS) to obtain NEC coverage. This conditional exclusion does not become effective until the PRDs are submitted and the annual fee is paid. Upon receipt of the annual fee, the Discharger will electronically receive an NEC acceptance notification via SMARTS, which will include a Waste Discharge Identification (WDID) number. A Discharger must maintain a condition of “No Exposure” at the facility for the conditional exclusion to remain applicable. The Discharger must annually electronically re-certify the NEC via SMARTS to confirm that the conditions of “no exposure” are being maintained. If conditions change resulting in the exposure of materials and activities to storm water, the Discharger must electronically certify and submit PRDs via SMARTS for Notice of Intent (NOI) coverage under the General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit).

Fees

First time NEC coverage PRDs and the annual re-certification require a fee. Fees may be changed by State Water Board regulation, independent of this General Permit.

How to Prepare and Submit PRDs for NEC Coverage

A Discharger must electronically certify and submit PRDs for NEC coverage in accordance with the instructions provided at the State Water Board web site for SMARTS:

<https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

A Discharger with multiple facilities that satisfy the conditions of “No Exposure” must certify and submit PRDs for each facility. The Discharger is required to inspect and evaluate each individual facility to determine the condition of No-Exposure. The Discharger must retain an electronic or paper copy of the NEC coverage acceptance notification for their records.

The following information is required in the PRDs:

Discharger Information

1. The legal business name of the business entity, public organization, or any other entity that operates the facility described in the certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility operations, not the plant or site manager.
2. The mailing address of the facility operator, including the city, state, and zip code.
3. The facility operator contact person, telephone number and e-mail address.

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

Facility Information

4. The legal business name of the facility.
5. The total acreage of the facility associated with industrial activity. (Facility size in acres is calculated by taking the square feet and dividing by 43,560.)
6. The complete physical street address (e.g. the street address used for express deliveries), including the city, State, and zip code. Do not use a P.O. Box number. If a physical street address does not exist, describe the location or provide the latitude and longitude of a point within the facility boundary. Latitude and longitude are available from United States Geological Survey quadrangle or topographic maps, or may be found using a mapping site on the internet.
7. The facility contact person, telephone number, and e-mail address.
8. The 4-digit Standard Industrial Classification (SIC) code that represents the facility primary industrial activity. Provide a brief description of the primary industrial activity. If applicable, enter other significant SIC codes and descriptions. To obtain these codes, see the 1987 SIC Manual or the Occupational Health and Safety Administration's site:

<http://www.osha.gov/pls/imis/sicsearch.html>
9. If the facility is currently covered under the General Permit, include the WDID number. The WDID number will be used at a later date to terminate the facility's coverage under the General Permit as necessary.

Facility Mailing or Billing Address

Completion of this item is required the facility mailing address or billing address differs from the physical facility address provided above. The Discharger must indicate which address the annual fee invoice must be sent to if the State Water Board is unable to transmit the invoice electronically.

Site Maps

Site maps must be prepared and submitted in accordance with the requirements in Section X.E of this General Permit.

NEC Checklist

The Discharger must evaluate the eleven major areas that storm water exposure may occur, per the listing at the end of this appendix. The Discharger must be able to certify

that none of these major areas have potential for exposure. If the Discharger cannot certify that every one of the eleven major areas do not have exposure, a potential for exposure exists at the facility and the facility is not eligible for NEC coverage. The Discharger must obtain (or continue) NOI coverage under this General Permit if the facility is not eligible for NEC coverage. After obtaining NOI coverage, the Discharger may implement facility modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then change their NOI coverage to NEC coverage by certifying the conditions of "No Exposure" are met.

Certification

Federal and state statutes provide for severe penalties for Dischargers that submit false information on the PRDs. Dischargers shall certify and submit PRDs via SMARTS for NEC coverage in accordance with Electronic Signature and Certification Requirements in Section XXI.K of this General Permit.

B. GUIDANCE:

Contact your local Regional Water Quality Control Board (Regional Water Board) office with questions regarding this guidance.

1. Who is Eligible to Qualify for the No Exposure Certification (NEC) - Conditional Exclusion?

All industrial categories listed in Attachment A of this General Permit (excluding construction) are eligible to apply for the NEC coverage.

2. Limitations on Eligibility for NEC coverage

In addition to construction projects not being eligible, the following situations limit the applicability of NEC coverage:

- a. NEC coverage is available on a facility-wide basis only, not for individual drainage areas or discharge locations. Generally, if any exposed industrial materials or activities exist, or have a potential to exist, anywhere at a facility, NEC coverage is not applicable to the facility. If the Regional Water Board determines that a facility does have exposure or the facility's storm water discharges have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives/standards, the Regional Water Board can deny NEC coverage.
- b. If changes at a facility result in potential exposure of industrial activities or materials, the facility is no longer eligible for NEC coverage. Dischargers

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

shall register for NOI coverage under this General Permit prior to a planned facility change that will cause exposure, or within seven (7) calendar days after unplanned exposure occurs. If an unplanned exposure occurs due to an emergency response or one-time event that is unlikely to re-occur, a Discharger may contact the Regional Water Board to discuss whether the requirement to obtain NOI coverage can be waived. Unless the Discharger receives a written waiver from the Regional Water Board, the Discharger shall electronically certify and submit PRDs to obtain NOI coverage.

- c. Current contamination resulting from historic industrial practices at the facility (e.g., soil contamination, groundwater contamination, etc.) represents a condition of exposure to waters of the United State; therefore a facility with historic contamination is not eligible for NEC coverage.

3. What is the Definition of No Exposure?

- a. No Exposure means all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff.
- b. Industrial materials and activities include, but are not limited to, material-handling equipment or activities; industrial machinery; raw materials, intermediate products, by-products, and final products; or waste products.
- c. Material handling activities include storage, loading and unloading, transport, or conveyance of any raw material, intermediate product, by-product, final product, or waste product.
- d. Final products intended to be used outdoors (e.g., automobiles) typically pose little risk of polluting storm water since not typically contaminated with pollutants that become mobilized by contact with storm water. Final products are exempt from the requirement for protection by a storm-resistant shelter to qualify for no exposure. Similarly, containers, racks, and other transport platforms (e.g., wooden pallets) used for the storage or conveyance of final products may also be stored outside if pollutant-free or pollutants do not mobilize via contact with storm water.
- e. Storm-resistant shelters include: (1) completely roofed and walled buildings or structures, (2) structures with only a top cover (no side coverings) supported by permanent supports, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.) or being

tracked out of the facility, and is not a source of pollutants in the industrial storm water discharges.

4. Industrial Materials/Activities Not Requiring a Storm-Resistant Shelter

The intent of the “No Exposure” exclusion is to maintain a condition of permanent “No Exposure”. A storm-resistant shelter is not required for the following industrial materials and activities:

- a. Drums, Barrels, Tanks, and Similar Containers that are sealed (“sealed” means banded or otherwise secured and without operational taps or valves), are not exposed provided those containers are not deteriorated, do not contain residual materials on the outside surfaces, and do not leak. Drums, barrels, etc., that are not opened while outdoors, or are not deteriorated or leaking, and that do not pose a risk of contaminating storm water runoff. Consider the following when making a “No Exposure” determination:
 - i. Materials shall not be added or withdrawn to/from containers while outdoors
 - ii. Simply moving containers while outside does not create exposure unless exposure occurs when pollutants are “tracked out” by the container handling equipment or vehicles.
 - iii. All outdoor containers shall be inspected to ensure they are not open, deteriorated, or leaking. When an outdoor container is observed as opened, deteriorated, or leaking, the container must immediately be closed, replaced, or sheltered. Frequent detection of open, deteriorated, or leaking containers, or failure to immediately close, replace, or shelter opened, deteriorated or leaking containers will cause a condition of exposure.
 - iv. Containers, racks, and other transport platforms (e.g., wooden pallets) used with drums, barrels, etc., can be stored outside providing they are contaminant-free and in good repair.
- b. Above Ground Storage Tanks (ASTs) In addition to generally being considered as not exposed, ASTs may also be exempt from the prohibition against adding or withdrawing material to/from external containers. ASTs typically use transfer valves to dispense materials that support facility operations (e.g., heating oil, propane, butane, chemical feedstock) or fuel for delivery vehicles (gasoline, diesel, compressed natural gas). For operational

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

ASTs to qualify for “No Exposure”, the following must be satisfied:

- i. The tank(s) shall be physically separated from and not associated with vehicle maintenance operations.
 - ii. There shall be no leaks from piping, pumps, or other equipment that has the potential to come in contact with storm water.
 - iii. Wherever feasible, the tank(s) shall have secondary containment (e.g., an impervious dike, berm or concrete retaining structure) to prevent runoff in the event of a structural failure or leaking transfer valve. Note: any resulting unpermitted discharge is in violation of the CWA.
- c. Lidded Dumpsters. Lidded dumpsters containing waste materials, providing the containers are completely covered and nothing can drain out holes in the bottom, spilled when loaded into the dumpster, or spilled in loading into a garbage truck. Industrial waste materials and trash that is stored uncovered is considered exposed.
- d. Adequately maintained vehicles, such as trucks, automobiles, forklifts, trailers or other general-purpose vehicles found onsite - but not industrial machinery that are not leaking, are in good repair or are not otherwise a potential source of contaminants:
- i. Vehicles passing between buildings may be exposed to storm water, however if the vehicles are adequately maintained, a condition of exposure may not exist. Similarly, non-leaking vehicles awaiting maintenance at vehicle maintenance facilities are not considered as potential exposure. However, vehicles that have been washed or rinsed that are not completely dry prior to outside exposure have the potential to cause a condition of exposure. Vehicles that track materials out of the facility are considered to be mobilizing pollutants. Vehicles that exit maintenance bays are also considered to cause exposure.
 - ii. The mere conveyance between buildings of materials / products that are otherwise not allowed to be stored outdoors, does not create a condition of exposure, provided the materials/products are adequately protected from storm water and do not have the potential to be released as a result of a leak or spill.
- e. Final products built and intended for use outdoors (e.g., new cars), provided the final products have not deteriorated, are not contaminated, or are not otherwise potential sources of contaminants.
- Types of final products not qualifying for a certification of “No Exposure”:
- i. Products that may be mobilized in storm water discharges (e.g., rock salt).
 - ii. Products, which may, when exposed, oxidize, deteriorate, leak, or otherwise be a potential source of contaminants (e.g., junk cars, stockpiled train rails).
 - iii. “Final” products that are, in actuality, “intermediate” products. Intermediate products are those used in the composition of yet another product (i.e., sheet metal, tubing, and paint used in making tractors).
 - iv. Even if the intermediate product is “final” for a manufacturer and destined for incorporation in a “final product intended for use outdoors,” the product is not allowed to be exposed because they may be chemically treated or are insufficiently impervious to weathering.
- f. Special Conditions for Construction Activities
Permanent, uninterrupted sheltering of industrial activities or materials may not always be possible during facility renovation or construction. When such circumstances exist, the Discharger is not required to obtain coverage under an NPDES permit as long as the following conditions are met:
- i. Materials and activities are protected with temporary covers or shelters (i.e. tarpaulins);
 - ii. Temporary covers or shelters prevent the contact of storm water to materials and activities;
 - iii. Materials are subject to wind dispersion are not stored under temporary sheltering;
 - iv. Temporary shelters are only used when necessary during facility renovation or construction and until permanent storm-resistant shelters as described above are available; and,
 - v. Temporary shelters are only used for a single period of ninety days or less. (Facilities with construction and renovation projects that will need the use of temporary shelters beyond 90 days, or that will require multiple periods of ninety

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

days or less, are required to be covered by an NPDES permit.)

5. Other Potential Sources of Contaminants

- a. Particulate Emissions from Roof Stacks and/or Vents: Deposits of particles or residuals from roof stacks/vents that have the potential to be mobilized by storm water runoff are considered exposed.
- b. Pollutants Potentially Mobilized by Wind Windblown materials cause a condition of exposure. Materials sheltered from precipitation are be deemed exposed if the materials has a potential to be mobilized by wind.

6. Certifying a Condition of “No Exposure”

To obtain the NEC coverage, the Discharger must electronically certify and submit PRDs via SMARTS that the facility meets the definition of “No Exposure” and pay an annual fee. The Discharger must **submit PRDs for NEC coverage even if the Discharger was not previously required to file for NEC coverage under the previous General Permit**. These PRDs include a checklist requiring the Discharger to evaluate eleven major areas to determine whether there is exposure of industrial activities and materials at the facility. To qualify for NEC coverage the Discharger must satisfy all the NEC coverage conditions in this General Permit and certify that there is “No Exposure”. The checklist: 1) aids the Discharger in determining if its facility is eligible for NEC coverage, and 2) furnishes the necessary documentation supporting relief from the General Permit’s requirement of NOI coverage. Additionally, Dischargers with NEC coverage are not required to develop and implement SWPPPs or comply with the monitoring requirements.

If a Discharger cannot certify that there is “No Exposure” at the facility, the Discharger must make appropriate changes at the facility to eliminate exposure prior to registering for future NEC coverage. Facility changes must remove all potential for pollutant exposure to storm water.

An annual inspection and evaluation, re-certification and fee are required thereafter.

7. Other NEC coverage Facts:

- a. NEC coverage is only valid if the condition of “No Exposure” exists and is reasonably expected to continue to exist. Dischargers shall electronically certify and submit PRDs for NOI coverage when the condition of “No Exposure” is no longer expected to exist.
- b. Dischargers must file PRDs for NEC coverage for each qualifying facility.
- c. An NEC must be submitted for each separate facility qualifying for the “No Exposure” conditional exclusion.
- d. An NEC is non-transferable. If a new operator takes over facility operations, the new operator shall electronically certify and submit PRDs and applicable fees for new NEC coverage via SMARTS prior to the operations transfer. NEC coverage cannot be transferred from one physical location to another regardless of ownership.

8. Operators May Be Required to Obtain NOI Coverage Based on the Protection Of Water Quality?

Operators who certified that their facilities qualify for NEC coverage may, nonetheless, be required by the Regional Water Board to obtain NOI coverage if the Regional Water Board determines that the facility’s discharge has the potential to cause or contribute to an exceedance of applicable water quality objectives/standards or determines that exposure exists at the facility. The Regional Water Board may request information and/or inspect the facility to assess potential water quality impacts and to determine if NOI coverage is required. The Discharger shall take appropriate actions to ensure compliance with the General Permit.

9. Steps to Obtain NEC coverage

This section will walk you through the process of obtaining NEC coverage.

Step 1: Determine if your facility is subject to this General Permit (refer to Attachment A of this General Permit). If yes, proceed to Step 2. If not, stop here.

If your facility is included in Attachment A and conducts industrial activities, you are required to **either** register for NOI coverage or NEC coverage.

Step 2: Determine if your regulated industrial activity meets the definition of “No Exposure” and qualifies for the exclusion from permitting. If yes, proceed to Step 3. If no, stop here and obtain NOI coverage. An

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

evaluation of the facility must be conducted by facility personnel familiar with the facility and its operations. Inspect all facility areas and potential pollutant sources to determine whether the facility satisfies the “No Exposure” conditions.

Step 3: Electronically certify and submit the PRDs for NEC coverage via SMARTS and mail the annual fee to the State Water Board at the following address:

SWRCB
Surface Water Permitting Section
PO Box 1977
Sacramento, CA 95812-1977

To maintain NEC coverage, the NEC must re-certify and pay a fee annually. This may only be done if the condition of “No Exposure” continues to exist at the facility.

Step 4: If requested, staff from the Water Boards, local Municipal Separate Storm Sewer System (MS4), or United States Environmental Protection Agency must be allowed to inspect your facility. All inspection reports will be made publicly available.

Step 5: Maintain a condition of “No Exposure”.

- NEC coverage is not a blanket exemption. Therefore, if facility physical or operational changes occur which cause exposure of industrial activities or materials to storm water, the Discharger must then immediately comply with all the requirements of this General Permit, including obtaining NOI coverage as applicable.
- To maintain the condition of “No Exposure”, the Discharger shall annually evaluate the facility to assure that the conditions of “No Exposure” still exist. More frequent evaluations may be necessary in circumstances when facility operations are rapidly changing.
- Failure to maintain the condition of “No Exposure” or otherwise obtain NOI coverage may lead to the unauthorized discharge of storm water associated with industrial activity to waters of the United States, resulting in penalties under the CWA and Water Code.

C. Frequently Asked Questions:

Q1. Who is eligible for NEC Coverage?

- A. Any Discharger operating a facility described in Attachment A may register for NEC coverage if their facility has a condition of “No Exposure”.

Q2. How does an eligible Discharger file for NEC coverage and where is the annual fee sent?

- A. The PRDs for NEC coverage shall be electronically certified and submitted in accordance with the instructions provided in SMARTS at the State Water Board website at: <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>. The fee is currently \$242, but may be changed by regulation. Once NEC coverage is accepted, an invoice will be electronically sent to the Discharger. The annual fee and invoice shall be sent to:
- State Water Resources Control Board
Division of Water Quality
Attention: Industrial Storm Water Unit
P.O. Box 1977
Sacramento, CA 95812-1977

Q3. If my facility’s storm water discharges are covered by an individual permit, can I file for NEC coverage?

- A. Yes. Storm water discharges covered by an individual permit are eligible for NEC coverage if the conditions at the facility satisfy the definition of “No Exposure” and you obtain approval to terminate individual permit coverage from the local Regional Water Board prior to PRD submittal. Approval from the Regional Water Board is mandatory. Many individual permits, for example, contain numeric storm water effluent limitations (“antibacksliding” provisions may prevent these facilities from qualifying for the “No Exposure” conditional exclusion).

Q4. My facility was originally excluded from the Phase I regulations because it was classified as a "light industrial facility". The facility has never had any exposure to storm water runoff. Do I now need to certify that the facility meets the No Exposure Exclusion from NPDES Storm Water Permitting?

- A. Yes. See answer provided to question number 9, “What is the exclusion “conditional” upon?”

Q5. Do I have to file a Notice of Termination (NOT) and a register for NEC coverage if my facility has NOI coverage and qualifies for NEC coverage?

- A. No. You are only required to register for NEC coverage. You must provide the WDID# in your NEC coverage PRDs in order for the State Water Board to change permit coverage status.

Q6. When and how often is a NEC coverage re-certification required?

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

- A.** Re-certification of NEC coverage is required annually (assuming the facility maintains its “No Exposure” status). The State Water Board will electronically transmit an NEC re-certification and annual fee notification to each facility operator who has filed for NEC coverage.

public documents and will be available for public review via SMARTS.

Q10. Can secondary containment around an outdoor exposed area qualify for a condition of “No Exposure”?

- A.** If secondary containment is engineered to always prevent a discharge of collected rainfall (based on the historical rainfall record) and a simultaneous spill of any other industrial materials or liquids, the “No Exposure” condition may be claimed. Note that there must be proper disposal of any water or liquids collected from the containment (i.e., discharged in compliance with another NPDES permit, treated and discharged to the sanitary sewer, or trucked offsite to an appropriate disposal/treatment facility).

D. NEC Checklist

An NEC Checklist must be prepared by the Discharger demonstrating that: (1) the facility has been evaluated, (2) none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation, and (3) all unauthorized NSWs have been eliminated:

1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;
2. Materials or residuals on the ground or in storm water inlets from spills/leaks;
3. Materials or products from past industrial activity;
4. Material handling equipment (except adequately maintained vehicles);
5. Materials or products during loading/unloading or transporting activities;
6. Materials or products stored outdoors (except final products intended for outside use, i.e., new cars, where exposure to storm water does not result in the discharge of pollutants);
7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
8. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;
9. Waste material (except waste in covered, non-leaking containers, i.e., dumpsters);

New Dischargers must register for NEC coverage before the commencement of facility operations. Dischargers that fail to file for NEC coverage or apply for NOI coverage before the commencement of facility operations will be out of compliance and subject to enforcement.

Existing Dischargers have two options for submitting NECs:

1. Facility operators of “light industrial” facilities who have been operating under their original, no-certification-required permitting exemption must submit the NEC at any time prior to October 1, 2015. Dischargers who have not submitted an NEC or applied for permit coverage by this due date will be considered out of compliance and subject to Water Board enforcement.
2. Dischargers who have NOI coverage may register for NEC coverage at any time following completion of facility changes that result in the condition of “No Exposure”.

Q7. What happens if I know of changes that may cause exposure?

- A.** If exposure has the potential to occur in the near future due to some anticipated change at the facility, the Discharger must obtain NOI coverage to avoid potential enforcement for violations of this General Permit.

Q8. Is the NEC coverage transferable to a new Discharger?

- A.** No. If a new operator takes over your facility, the new operator must register for new NEC coverage prior to the transfer. A new application fee is required.

Q9. What is the exclusion “conditional” upon?

- A.** The exclusion from permit coverage requirements is “conditional” upon the certification of the Discharger that the facility does not have exposure of materials or activities to storm water. PRDs for NEC coverage shall be electronically submitted to the State Water Board and will not be accepted if incomplete. The Regional Water Board may review the information, contact and/or inspect the facility, and invalidate the NEC and require the Discharger to obtain NOI coverage. PRDs are

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

10. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and
11. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

APPENDIX 3

WATERBODIES WITH CLEAN WATER ACT SECTION 303(D) LISTED IMPAIRMENTS

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

The 303(d) impairments below are sourced from the 2010 Integrated Report. The rows in red are impairments for which industrial storm water Dischargers subject to this General Permit are not required to analyze for additional parameters unless directed by the Regional Water Board, because these parameters are typically not associated with industrial storm water. Test methods with substantially similar or more stringent method detection limits may be used if approved by the staff of the State Water Board prior to sampling and analysis and upon approval, will be added into SMARTS. The rows that are not in red are impairments for which Dischargers in the 303(d) impaired watershed are required to analyze for additional parameters, if applicable, because these parameters are more likely to be associated with industrial storm water. See General Permit Section XI.B.6.e. In the event that any of the impairments in this appendix are subsequently delisted, the Dischargers with discharges to that watershed are no longer required to analyze for the additional parameters for those impairments, and the provisions for new Dischargers with discharges to 303(d) impaired water bodies contained in Section VII.B of this General Permit no longer apply for those impairments.

The Excel spreadsheet containing the water bodies with 303(d) impairments is an attachment to this Appendix 3. To view the attachment from an electronic (pdf) version of this Appendix 3, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icon of an Excel spreadsheet. The Excel spreadsheet is also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (<http://www.waterboards.ca.gov/>).

ATTACHMENT

12

EXECUTIVE OFFICER SUMMARY REPORT
November 8, 2000

ITEM: 6

SUBJECT: AMENDMENT TO RIVERSIDE COUNTY MUNICIPAL STORMWATER PERMIT TO BE CONSISTENT WITH REQUIRMENTS ISSUED BY USEPA (TENTATIVE ADDENDUM NO. 1 TO ORDER NO. 98-02. NPDES PERMIT NO. CAS0108766) (Elizabeth Lair)

PURPOSE: To incorporate language developed by the United States Protection Agency into Order No. 98-02

DISCUSSION: In a letter dated March 25, 1998 to the Regional Board, the United States Environmental Protection Agency (USEPA) concluded that the language in the Regional Board draft permit pertaining to receiving water limitations would not comply with the Clean Water Act and its implementing regulations. On May 13, 1998, this Regional Board adopted Order No. 98-02 (NPDES Permit No. CAS0108766), **Permit for Discharges of Storm Water and Urban Runoff from the Storm Water Conveyance systems of Riverside County Flood Control District, the County of Riverside, and the Incorporated Cities of Riverside County within the San Diego Region.** However, on May 26, 1998, in accordance with the program delegation agreement with the State, USEPA Region IX objected to the reissued permit. USEPA's concerns related to the receiving water limitation language in the permit. This objection was not resolved within the 90-day period provided by the delegation agreement. As a result, on September 18, 1998, USEPA Region IX assumed responsibility for the permit and requested the MS4 permit reapplication from the co-permittees. USEPA developed its own permit based on the information submitted by the co-permittees. The USEPA then finalized a permit, which would fully comply with the Clean Water Act. By Letter dated April 28, 1999, the USEPA enclosed a final draft permit, pursuant to 40 CFR 124, which differed slightly from the original permit. The changes which were made were discussed in the final fact sheet and response to public comments where were also enclosed along with the final permit (see attachment 2). The USEPA issued **Authorization to Discharge Under the National Pollutant**

Discharge Elimination System became effective on May 30, 1999.

In a letter dated June 25, 1999, the USEPA formally advised the RWQCB that permit No. CAS0108766 has been returned to the RWQCB for implementation. This includes the review of annual reports, the special requirements of Appendix 1 of the permit, and overseeing compliance with the permit. For ease of enforcement and regulation, it is recommended that the RWQCB adopt the USEPA developed language in its entirety and replace the language of Order 98-02.

The USEPA Region IX standard permit conditions, as referenced on Page 9 of 18 in NPDES permit No. CAS0108766, have not been updated since May 10, 1990. However, Staff recommends adopting the permit in its entirety, because the permit has gone through the public review process and was adopted by the USEPA.

SIGNIFICANT CHANGES: The significant change between RWQCB Order 98-02 and USEPA issued NPDES permit No. CAS0108766 is the receiving water limitation language. Also, there are more minor differences in wording throughout, but the entire document. However, Staff does not find these differences to significantly change the requirements.

LEGAL CONCERNS: None

COMPLIANCE ISSUES: None

SUPPORTING DOCUMENTS:

- 1) Tentative Addendum No. 1 to Order No. 98-02, NPDES Permit No. CAS0108766
- 2) Letter from the USEPA dated April 28, 1999
- 3) Letter from the USEPA dated March 25, 1998
- 4) Letter from the USEPA dated May 26, 1998
- 5) Letter from the USEPA dated June 25, 1999
- 6) Notice of Public Hearing Proof of Publication

RECOMMENDATION(S): Staff recommends that the Regional Board adopt tentative Addendum No. 1 to Order No. 98-02.

ATTACHMENT 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

TENTATIVE ADDENDUM NO. 1 TO ORDER NO. 98-02 NPDES PERMIT NO. CAS0108766

AN ADDENDUM MODIFYING ORDER NO. 98-02 TO INCORPORATE LANGUAGE DEVELOPED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. Order No. 98-02 (NPDES Permit No. CAS0108766) specifies Waste Discharge Requirements for **Discharges of Storm Water and Urban Runoff from the Riverside County Flood Control District, the County of Riverside, and the Incorporated Cities of Riverside County within the San Diego Region (Co-Permittees)**.
2. NPDES No. CAS0108766 issued by the USEPA on May 30, 1999 established waste discharge requirements for the Co-Permittees.
3. The requirements of Order No. 98-02 must be modified to assure consistency with the NPDES No. CA0108766, issued by the USEPA.
4. This Regional Board has notified all known interested parties of its intent to modify Order No. 98-02 to reflect the addition of the language developed by the United States Environmental Protection Agency.
5. This Regional Board in public hearing heard and considered all comments pertaining to the final draft of the addendum.

IT IS HEREBY ORDERED THAT Order No. 98-02 is modified to reflect the language in its entirety as developed by the United States Environmental Protection Agency in their **Authorization to Discharge Under the National Pollutant Discharge Elimination System** which became effective May 30, 1999.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Addendum adopted by the California Regional Water Quality Control Board, San Diego Region, on November 8, 2000.

Tentative
JOHN H. ROBERTUS
Executive Officer



ATTACHMENT 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAR 4/5
FM 5/5
D8g 5/5
file
MAY -3 P 1:25

APR 28 1999

In Reply
Refer To: WTR-5

David P. Zappe
General Manager-Chief Engineer
Riverside County Flood Control
and Water Conservation District
1995 Market Street
Riverside, CA 92501

USEPA's Final
Permit to
Riverside
exp: 11/2003

Dear Mr. Zappe:

~~SDRWOB~~ Order No 98-02 will be
amended to replace current language
with this language (EPA's Final)

Enclosed is a copy of a National Pollutant Discharge Elimination System (NPDES) permit which has been issued to the following discharger:

Municipal Separate Storm Sewer System
Santa Margarita Watershed
NPDES Permit No. CAS0108766

The staff at the U.S. Environmental Protection Agency (EPA) have reviewed the NPDES permit application for this facility and have prepared a draft permit in accordance with the Clean Water Act (CWA). EPA has also published a public notice of its tentative decision to issue a permit to the above discharger and has provided the opportunity for public comment on this permit. After considering the expressed views of all interested persons and agencies, pertinent Federal statutes and regulations, the EPA, pursuant to 40 CFR § 124, has prepared a final permit which differs only slightly from the draft permit. The changes which were made are discussed in the final fact sheet and response to public comments which are enclosed along with the final permit. EPA has also been notified by the San Francisco Bay Regional Board that it is waiving CWA section 401 certification requirements for this permit.

The NPDES permit is hereby issued upon the date of signature and shall become effective 33 days from the date of mailing, unless there is a written request for an evidentiary hearing. Requests for an evidentiary hearing must comply with all of the requirements set forth at 40 CFR §§ 124.74 and 124.76 and must be submitted to me (WTR-5) at the above address within 33 days from the date of this letter.

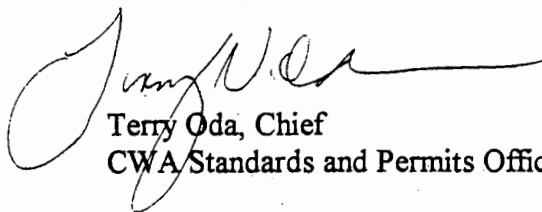
NPDES regulations at 40 CFR §§ 124.74 and 124.76 require, among other items, that requests for an evidentiary hearing must state each of the legal or factual questions alleged to be at issue, must specifically identify the permit conditions which are contested and those which are

inseverable from the contested conditions, and must identify suggested revised or alternative permit conditions which would be required to implement the purposes and policies of the CWA. In addition, the regulations require that the requester demonstrate one of the following for each issue being raised in the hearing request: (1) that the issue was raised during the public comment period, (2) that the issue was not reasonably ascertainable during the public comment period, or (3) the requester could not have reasonably anticipated the relevance or materiality of the issue during the comment period. Please review 40 CFR §§ 124.74 and 124.76 for a complete description of the requirements applicable to requests for evidentiary hearings.

EPA will routinely deny any request for an evidentiary hearing which is postmarked later than the 33rd day from the date of this letter. Also, EPA will routinely deny any request for an evidentiary hearing which raises only legal issues or does not contain all of the requirements set forth at 40 CFR §§ 124.74 and 124.76. Any denial of a request for an evidentiary hearing may be appealed to the Administrator within 30 days from the date of notice of the denial. The requester must exhaust all administrative review before seeking judicial review.

If you have any questions regarding this matter, please call Eugene Bromley of the CWA Standards and Permits Office at (415) 744-1906.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry Oda", with a long horizontal flourish extending to the right.

Terry Oda, Chief
CWA Standards and Permits Office

Enclosures

cc (w/encl.): Christopher Hans, Riverside County
Eugene Diepholz, City of Murrieta
John Pourkazemi, City of Temecula
Mark Wills, Riverside County Flood Control
Deborah Jayne, San Diego Regional Board
John H. Robertus, San Diego Regional Board
Mike Adackapara, San Ana Regional Board
Walt Pettit, State Board
Bruce Fujimoto, State Board
Betsy Jennings, State Board
Jon Van Rhyn, San Diego County Department of Environmental Health
Bob Wheeler, Elsinore-Murrieta Resource Conservation District
Jayne Joy, USMC, Camp Pendleton
Borre Winkler, Riverside County BIA
Diane Takvorian, Environmental Health Coalition
Richard Watson, Richard Watson and Associates
Ken Moser, San Diego BayKeeper
Bob Collacott, Woodward Clyde Consultants
Everett DeLano, Environmental Law and Litigation
Dave Brent, California Storm Water Quality Task Force
Robert Hale, California Storm Water Quality Task Force
Robert Falk, Morrison & Foerster
Gary Grimm, Law Offices of Gary Grimm
Steve Borroum, Caltrans
Nora Chorover, Law Offices of Nora Chorover
Mark Gold, Heal the Bay
David Beckman, NRDC
Robert Cain, City of San Diego
Mike Lozeau, San Francisco BayKeeper

Permit No. CAS0108766

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et. seq.; the "Act"),

Riverside County Flood Control
and Water Conservation District
1995 Market Street
Riverside, CA 92501

Riverside County
4080 Lemon Street, 12th Floor
Riverside, CA 92501

City of Murrieta
26442 Beckman Court
Murrieta, CA 92562

City of Temecula
P.O. Box 9033
Temecula, CA 92589

are authorized to discharge storm water runoff from the municipal separate storm sewer system (MS4) operated by the permittees to waters of the United States from all outfalls within the permittees' MS4 in accordance with effluent limitations, monitoring requirements and other conditions set forth in Part I, Part II (USEPA Region IX Standard Federal NPDES Permit Conditions dated May 10, 1990) and Appendix 1 of this permit.

This permit shall become effective on MAY 30 1999

This permit and the authorization to discharge shall expire at midnight, November 30, 2003.

Signed this 27th day of April 1999

For the Regional Administrator

John Ong for A.S.

Acting Director, Water Division

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittees are authorized to discharge storm water runoff from all outfalls of the permittees' MS4.

2. Non-Storm Water Discharges

The permittees shall prohibit non-storm water discharges into the MS4. NPDES permitted discharges are exempt from this prohibition.

a. The following discharges need not be prohibited unless they are identified as a source of pollutants by either the permittees or USEPA Region IX:

from riparian habitats and wetlands
diverted stream flows
springs
rising ground waters
uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to
separate storm sewers

If any of the above discharges are identified as sources of pollutants, the discharges need not be prohibited provided the permittees develop and implement appropriate best management practices to ensure that the discharges are not a source of pollutants as described in Part I.A.2.b of this permit.

b. The following discharges need not be prohibited nor additional control measures implemented by the permittees prior to the effective date of the permit modification discussed below:

water line flushing
landscape irrigation
uncontaminated pumped ground water
discharges from potable water sources
foundation drains
air conditioning condensate
irrigation water
water from crawl space pumps
footing drains

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lawn watering
individual residential car washing
discharges from emergency fire fighting activity

For each of the discharges listed above, the permittees shall select one of the following options and submit the required information not later than March 15, 2000:

- i. The permittees shall submit information showing that the discharge is not a source of pollutants, or in the case of emergency fire fighting runoff, not a significant source of pollutants;
- ii. The permittees shall propose appropriate best management practices to ensure that the discharge is not a source of pollutants, or in the case of emergency fire fighting runoff, not a significant source of pollutants; or
- iii. The permittees shall propose a prohibition on the discharge entering the MS4.

Upon receipt of the submittal by USEPA Region IX, this permit shall be reopened and modified to require the implementation of the proposed best management practices, or a modification of the proposals if necessary to comply with the Clean Water Act. This permit shall also be reopened and modified to require that the permittees prohibit each of the above non-storm water discharges for which appropriate best management practices are not proposed, or for which information is not provided showing that the discharge is not a source of pollutants, or not a significant source of pollutants in the case of emergency fire fighting runoff.

3. Storm Water Management Program

The permittees shall control pollutants in storm water discharges to the maximum extent practicable, and to demonstrate compliance with this requirement, the permittees shall implement in its entirety the proposed storm water management program (SWMP) described in the documents listed in Part I.D.11 of this permit. All storm water pollution control measures identified in the SWMP shall be implemented, including existing and proposed measures, and any modifications to the SWMP made during the term of this permit, including those made in accordance with Part I.A.5.b of this permit. Proposed control measures shall be implemented in accordance with the implementation schedules provided in the SWMP, with the effective date of the permit serving, at a minimum, as the starting date for the implementation schedule.

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The permittees shall also implement the additional control measures related to the SWMP set forth in Appendix 1 to this permit in the time frame set forth in Appendix 1.

4. Storm Water Monitoring Program

The permittees shall implement the storm water monitoring program described in the documents listed in Part I.D.12 of this permit.

5. Compliance with Water Quality Standards

- a. Discharges from the MS4 that cause or contribute to the violation of water quality standards or water quality objectives (collectively WQSs) are prohibited.
- b. The permittees shall comply with Part I.A.5.a of this permit through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this permit including any modifications; the SWMP shall be designed to achieve compliance with Part I.A.5.a of this permit; if exceedance(s) of WQSs persist notwithstanding implementation of the SWMP and other requirements of this permit, the permittees shall assure compliance with Part I.A.5.a of this permit by complying with the following procedure:
 - i. Upon a determination by either the permittees or USEPA Region IX that discharges are causing or contributing to an exceedance of an applicable WQS, the permittees shall promptly notify and thereafter submit a report to USEPA Region IX that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSs. The report may be incorporated in the annual update to the SWMP unless USEPA Region IX directs an earlier submittal. The report shall include an implementation schedule. USEPA Region IX may require modifications to the report;
 - ii. Submit any modifications to the report required by USEPA Region IX within 30 days of notification;
 - iii. Within 30 days following approval of the report described above by USEPA Region IX, the permittees shall revise the SWMP and monitoring program to incorporate the approved modified BMPs that have been and will be

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implemented, the implementation schedule, and any additional monitoring required;

- iv. Implement the revised SWMP and monitoring program in accordance with the approved schedule.

So long as the permittees have complied with the procedures set forth above and are implementing the revised SWMP, the permittees do not have to repeat the same procedure for continuing or recurring exceedances of the same WQSS unless directed by USEPA Region IX to develop additional BMPs.

B. ANNUAL REPORT

The permittees shall submit an annual report summarizing the storm water program activities including, at a minimum, the following items:

1. The status of implementing the components of the SWMP required by the permit;
2. Any proposed changes to the SWMP;
3. Any revisions or updates to the assessment of controls and fiscal analysis reported in the permit application;
4. A summary of the data, including monitoring data, that is accumulated during the monitoring year;
5. Annual expenditures and budget for the year following each annual report;
6. A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
7. Identification of water quality improvement or degradation.

The annual report is due on September 15 of each year of the term of this permit. The first report is due on September 15, 1999.

C. ENDANGERED SPECIES ACT REQUIREMENTS

This permit does not authorize nor require the construction of any particular structural storm water quality control device that could adversely affect listed or proposed threatened or endangered species.

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D. DEFINITIONS

1. Best Management Practices (BMPs) refer to schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. "CWA" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 95-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq.
3. "Illicit Discharge" means any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges from fire fighting activities.
4. "Major Outfall" means a municipal separate storm sewer outfall from a single pipe with an inside diameter of 36 inches or more or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more, or from its equivalent (discharge from other than a circular pipe associated with a drainage area of 2 acres or more).
5. "Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streams, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
 - (i) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal or sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to water of the United States;
 - (ii) designed or used for collecting or conveying storm water;

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- (iii) which is not a combined sewer; and
(iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.
6. "Outfall" means a point source where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.
 7. "Permittees" mean the Riverside County Flood Control and Water Conservation District, Riverside County and the Cities of Murrieta and Temecula.
 8. "Point Source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.
 9. "Representative Storm" means a storm event of greater than 0.1" of rainfall and at least 72 hours after the previously measurable (greater than 0.1" rainfall) storm event. Where feasible, the variance in the duration of the event and the total rainfall of the event should not exceed 50 percent from the average or median rainfall event in the area.
 10. "Storm water" means storm water runoff, snow melt runoff, and surface runoff and drainage.
 11. The "storm water management program" (SWMP) consists of the following documents:
 - i. SWMP described in sections 4 through 8 of the document entitled "NPDES Municipal Stormwater Application for Permit Renewal, Santa Margarita Watershed" dated January 17, 1995, and further described in the document entitled "Santa Margarita Regional Drainage Area Management Plan" dated March, 1993.
 12. The "storm water monitoring program" consists of the following documents:

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i. Consolidated program for water quality monitoring described in section 9 of the document entitled "NPDES Municipal Stormwater Application for Permit Renewal, Santa Margarita Watershed" dated January 17, 1995, and further described in the document entitled "Consolidated Program for Water Quality Monitoring" dated October, 1994.

13. "Waters of the United States" means:

- (a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (b) all interstate waters, including interstate "wetlands";
- (c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (3) which are used or could be used for industrial purposes by industries in interstate commerce;
- (d) all impoundments of waters otherwise defined as waters of the United States under this definition;
- (e) tributaries of waters identified in paragraphs (a) through (d) of this definition;
- (f) the territory sea; and
- (g) wetlands adjacent to areas (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to man-made bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States.

USEPA REGION IX STANDARD FEDERAL NPDES PERMIT CONDITIONS
(Updated as of May 10, 1990)

1. Duty to Reapply [40 CFR 122.21(d)]

The permittee shall submit a new application 180 days before the existing permit expires.

2. Applications [40 CFR 122.22]

a. All permit applications shall be signed as follows:

(1) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes; (I) The chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

b. All reports required by permits and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative or representatives of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this Section;

(2) The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either named individual or any individual occupying a named position.); and

(3) The written authorization is submitted to the Director.

c. Changes to authorization. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or a portion of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Certification. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly

responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

3. Duty to Comply [40 CFR 122.41(a)]

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

- a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- b. The Clean Water Act provides that:
 - (1) Any person who causes a violation of any condition in this permit is subject to a civil penalty not to exceed \$25,000 per day of each violation. Any person who negligently causes a violation of any condition in this permit is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two years, or both. [Updated pursuant to the Water Quality Act of 1987]
 - (2) Any person who knowingly causes violation of any condition of this permit is subject to fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than three years, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$100,000 per day of violation, or by imprisonment of not more than six years, or both. [Updated pursuant to the Water Quality Act of 1987]
 - (3) Any person who knowingly causes a violation of any condition of this permit and, by so doing, knows at that time that he thereby places another in imminent danger of death or serious bodily injury shall be subject to a fine or not more than \$250,000, or imprisonment of not more than 15 years, or both. A person who is an organization and violates this provision shall be subject to a fine or not more than \$1,000,000 for a first conviction. For a second conviction under this provision, the maximum fine and imprisonment shall be doubled. [Updated pursuant to the Water Quality Act of 1987]

4. Need to Halt or Reduce Activity Not a Defense [40 CFR 122.41 (c)]

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate [40 CFR 122.41(d)]

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance [40 CFR 122.41(e)]

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

7. Permit Actions [40 CFR 122.41(f)]

The permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

8. Property Rights [40 CFR 122.41 (g)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Duty to Provide Information [40 CFR 122.41(h)]

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

10. Inspection and Entry [40 CFR 122.41(i)]

The permittee shall allow the Director, or an authorized representative, upon the presentation of credential and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance

or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

11. Monitoring and Records

[40 CFR 122.41(j)]

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- b. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application, except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503). This period may be extended by request of the Director at any time.
- c. Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.
- d. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless test procedures have been specified in this permit.
- e. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained in this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than \$20,000 per day of violation, or imprisonment for not more than four years, or both. [Updated pursuant to the Water Quality Act of 1987]

12. Signatory requirement [40 CFR 122.41(k)]

- a. All applications, reports or information submitted to the Director shall be signed and certified. (See 40 CFR 122.22)
- b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record other document submitted or required to be

maintained under this permit, including monitoring reports of compliance or noncompliance shall, upon conviction, be punished by a fine or not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both for a first conviction. For a second conviction, such a person is subject to fine of not more than \$20,000 per day of violation, or imprisonment of not more than four years, or both. [Updated pursuant to the Water Quality Act of 1987]

13. Reporting requirements [40 CFR 122.41(l)]

- a. Planned changes. The permittee shall give notice to the Director as soon as possible to any planned physical alterations or additions to the permitted facility. Notice is required only when:
 - (1) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section 122.42(a)(1); or
- b. Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility of activity which may result in noncompliance with the permit requirements.
- c. Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (See Section 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory).
- d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
 - (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.
 - (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
 - (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.
- e. Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- f. Twenty-four hour reporting.

- (1) The permittee shall report any noncompliance which may endanger public health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned in order to reduce, eliminate, and prevent reoccurrence of the noncompliance.
 - (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
 - (i) Any unanticipated bypass which exceeds any effluent limitation in the permit. [See 40 CFR 122.41(g).]
 - (ii) Any upset which exceeds any effluent limitation in the permit.
 - (iii) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. [See 40 CFR 122.44(g).]
- g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under the above paragraphs (i), (ii), and (iii) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed paragraph (iii) of this section.
- h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.
14. Bypass [40 CFR 122.41(m)]
- a. Definitions
 - (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - b. Bypass not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this section.

c. Notice.

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, of possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (f) of section (13) (24-hour notice).

d. Prohibition of bypass.

- (1) Bypasses are prohibited, and the Director may take enforcement action against a permittee for a bypass, unless:
 - (i) A bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (iii) The permittee submitted notices as required under paragraph c of this section.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the director determines it will meet the three conditions listed above in paragraph (d) of this section.

15. Upset [40 CFR 122.41(n)]

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirement of paragraph c of this section are met. No determination made during administrative review of claims that noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated; and
- (3) The permittee submitted notice of the upset as required in paragraph 13(f) (24-hour notice).
- (4) The permittee complied with any remedial measures required under 40 CFR 122.41(d).

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

16. Reopener Clause [40 CFR 122.44(c)]

This permit shall be modified or revoked and reissued to incorporate any applicable effluent standard or limitation or standard for sewage sludge use or disposal under sections 301 (b) (2) (C), and (D), 304 (b) (2), 307 (a) (2) and 405 (d) which is promulgated or approved after the permit is issued if that effluent or sludge standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant or sludge use or disposal practice not limited in the permit.

17. Transfers by Modification [40 CFR 122.61(a)]

Except as provided in section 18, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under 40 CFR 122.62(b)(2)0, or a minor modification made under 40 CFR 122.63(d)), to identify the new permittee and incorporate such other requirements as may be necessary under the CWA.

18. Automatic Transfers [40 CFR 122.61(b)]

An alternative to transfers under section 17, any NPDES permit may be automatically transferred to a new permittee if:

- a. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date in paragraph (2) of this section;
- b. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
- c. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this subparagraph may also be a minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph (2) of this section.

19. Minor Modification of Permits [40 CFR 122.63]

Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of 40 CFR Part 125. Any permit modification not processed as a minor modification under this section must be made for cause and with 40 CFR Part 124 draft permit and public notice as required in 40 CFR 122.62. Minor modifications may only:

- a. Correct typographical errors;
- b. Require more frequent monitoring or reporting by the permittee;
- c. Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement;
- d. Allow for a change in ownership or operational control of a facility where the Director determines that no other change in their permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Director.
- e. Change the construction schedule for a discharger which is a new source. No such change shall affect a discharger's obligation prior to discharge under 40 CFR 122.29.
- f. Delete a point source outfall when the discharge from the outfall is terminated and does not result in discharge of pollutants from other outfall except in accordance with the permit limits.
- g. When the permit becomes final and effective on or after March 9, 1982, conform to changes respecting 40 CFR 122(3), (1), (m)(4)(I)(B), (n)(3)(I), and 122.42 (a) issued September 26, 1984.
- h. Incorporate conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 as enforceable conditions of the POTW's permit.

20. Termination of permits [40 CFR 122.64]

The following are causes for terminating a permit during its term, or for denying a permit renewal application:

- a. Noncompliance by the permittee with any condition of the permit;
- b. The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time;

- c. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination; or
- d. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the permit (for example, plant closure or termination of discharge by connection to a POTW).

21. Availability of Reports [Pursuant to Clean Water Act Section 308]

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Regional Administrator. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

22. Removed Substances [Pursuant to Clean Water Act Section 301]

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

23. Severability [Pursuant to Clean Water Act Section 512]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and remainder of the permit, shall not be affected thereby.

24. Civil and Criminal Liability [Pursuant to Clean Water Act Section 309]

Except as provided in permit conditions on "Bypass" (Section 14) and "Upset" (Section 15), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

25. Oil and Hazardous Substance Liability [Pursuant to Clean Water Act Section 311]

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

26. State or Tribal Law [Pursuant to Clean Water Act Section 510]

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the operator from any legal action or relieve the operator from any responsibilities, liabilities, or penalties established pursuant to any applicable State or Tribal law or regulation under authority preserved by Section 510 of the Clean Water Act.

APPENDIX 1 - Additional Permit Requirements

A. Street Sweeping Program

With the first annual report required by this permit, the permittees shall submit to USEPA Region IX a proposal for regular street sweeping of the permittees' municipal roads, including a description of the type of equipment to be used. Upon receipt of the proposal by USEPA Region IX, this permit shall be reopened and modified to include the proposal, or a modification of the proposal as necessary to comply with applicable requirements of the Clean Water Act.

B. Storm Drainage System Inspection and Maintenance

Not later than December 15, 1999, the permittees shall submit to USEPA Region IX a proposal for regular inspection and maintenance (including debris removal) of the permittees' municipal separate storm sewer system (not including municipal roads). Upon receipt of the proposal by USEPA Region IX, this permit shall be reopened and modified to include the proposal, or a modification of the proposal as necessary to comply with applicable requirements of the Clean Water Act.

C. Investigation of Malfunctioning Septic Systems

With the first annual report required by this permit, the permittees shall submit to USEPA Region IX an evaluation of the potential for storm water quality degradation from malfunctioning septic systems within the area covered by the permit. The evaluation shall also include recommendations for reducing pollutants discharged from malfunctioning septic systems if the permittees conclude that malfunctioning septic systems may contribute significant quantities of pollutants in storm water runoff. Upon receipt of the evaluation by USEPA Region IX, this permit may be reopened and modified to include any recommendations from the evaluation, or a modification of the recommendations as necessary to comply with applicable requirements of the Clean Water Act.

D. Source Identification and Prioritization

The permittees shall develop and update annually, at a minimum, a list of facilities within the jurisdiction of the permittees which discharge storm water associated with industrial activity as defined at 40 CFR 122.26(b)(14). The list shall also include non-industrial facilities, or categories of facilities which the permittees believe may discharge significant quantities of pollutants in storm water. The overall list shall be prioritized to indicate the individual sources, or categories of sources which the permittees believe are the most significant sources of pollutants.

E. Inspection Program for Industrial/Commercial Facilities

With the first annual report required by this permit, the permittees shall submit to USEPA Region IX a proposal for inspections of industrial and commercial facilities to evaluate storm

water pollution control efforts at the facilities. The proposal shall describe the types of facilities to be inspected and the frequency of such inspections and followup enforcement of local requirements. Upon receipt of the proposal by USEPA Region IX, this permit shall be reopened and modified to include the proposal, or a modification of the proposal as necessary to comply with applicable requirements of the Clean Water Act.

F. Inspection/Enforcement Program at Construction Sites

With the first annual report required by this permit, the permittees shall submit to USEPA Region IX a proposal for inspection and enforcement of the permittees' grading ordinance at construction sites. The proposal shall describe the frequency of the inspections and the type of follow-up enforcement to be undertaken. Upon receipt of the proposal by USEPA Region IX, this permit shall be reopened and modified to include the proposal, or a modification of the proposal as necessary to comply with applicable requirements of the Clean Water Act.

G. Legal Authority Requirements

Within six months of the effective date of this permit, each permittee shall provide a certification to USEPA Region IX that it has adequate legal authority to do the following:

- 1) control through ordinance, permit, contract, order or other means discharges of pollutants into the MS4 from storm water discharges associated with industrial activity;
- 2) prohibit illicit connections to the MS4;
- 3) control spills or the dumping of materials other than storm water into the MS4;
- 4) control through interagency agreements the contribution of pollutants from one portion of the MS4 to another;
- 5) require compliance with ordinances, permits, contracts or orders; and
- 6) conduct inspections, surveillance and monitoring to ensure compliance with permits or ordinances.

H. Monitoring for Diazinon and Chlorpyrifos

The wet weather monitoring program required by Part I.A.4 of this permit shall include diazinon and chlorpyrifos among the parameters for which sampling and analysis is conducted.

I. Watershed Coordination Report

Not later than March 15, 2000, the permittees shall submit to USEPA Region IX a report which analyzes the appropriateness of the permittees' storm water management program and monitoring program in addressing storm water quality issues within the Santa Margarita Watershed as a whole, including the program's effect on water quality and habitat downstream from the Riverside County line. This analysis shall also include an assessment of the compatibility

with corresponding programs of San Diego County and Camp Pendleton and the needs and opportunities for collaboration with these communities. The report shall also include recommendations for any needed changes to the permittees' storm water management program or monitoring program based on the findings of the report. Upon receipt of the report by USEPA Region IX, this permit may be reopened and modified to include the recommendations, or a modification of the recommendations as necessary to comply with applicable requirements of the Clean Water Act.

JN

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FACT SHEET
NPDES PERMIT NO. CAS0108766
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION
DISTRICT, RIVERSIDE COUNTY, CITIES OF TEMECULA AND MURRIETA

SUMMARY

The Riverside County Flood Control and Water Conservation District, Riverside County, and the Cities of Temecula and Murrieta (the "permittees") have applied to the U.S. Environmental Protection Agency, Region IX (USEPA Region IX) for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge storm water runoff from the permittees' municipal separate storm sewer system (MS4) in the Santa Margarita River drainage area of Riverside County. This drainage area is within the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB). The NPDES storm water permit is required in accordance with the provisions of the 1987 Water Quality Act (WQA) which require an NPDES permit for storm water discharges from MS4s (including the MS4 operated by the permittees) which serve a population of 100,000 or more. Final regulations were promulgated by EPA on November 16, 1990 (55 Fed. Reg. 47990) which set forth permit application requirements for MS4s affected by the 1987 WQA.

In California, NPDES permits are ordinarily issued by the RWQCBs since the NPDES permit program has been delegated to the State by USEPA Region IX. A storm water permit for the permittees' MS4 was originally issued by the San Diego RWQCB on July 16, 1990, and reissued on May 13, 1998. However, on May 26, 1998, in accordance with the program delegation agreement with the State, USEPA Region IX objected to the reissued permit due to concerns regarding the language in the permit pertaining to receiving water limitations. This objection was not resolved within the 90 day period provided by the delegation agreement. As a result, on September 18, 1998, USEPA Region IX assumed responsibility for the permit and requested the MS4 permit reapplication from the permittees.

EPA's storm water permit application regulations require a 2-part permit application for first round permits for MS4s. On May 17, 1996, EPA also issued a policy memorandum concerning requirements for permit reapplications for MS4s. The policy memorandum was issued in consideration of the fact that much of the information required for MS4 permit applications (such as information concerning rainfall data) had already been submitted with the first round permit application and it would be redundant to require resubmittal of this same information. For the reapplication, the policy memorandum recommends that permittees should provide information such as a revised storm water management program and monitoring program which include changes or improvements based on the permittees' experiences during the first permit term. The policy memorandum also suggests that the fourth year annual report from the MS4 could constitute the bulk of the reapplication package.

The 1987 WQA requires that pollutants in storm water discharges be controlled to the maximum extent practicable (MEP). The storm water management program is the means by which a municipality complies with the MEP standard. However, EPA recognizes that storm water issues and methods for controlling pollutants vary considerably with climatic and other differences around the country. Therefore, while EPA's regulations set forth the basic requirements of a storm water management program, the regulations also provide flexibility in that municipalities are given an opportunity to propose their own program.

USEPA Region IX has reviewed the permit reapplication submitted by the permittees and believes that the permittees' proposals for the storm water management program, monitoring program and other program elements are appropriate (with certain relatively minor exceptions) for the MS4. USEPA Region IX prepared a draft permit based on the reapplication and public noticed its intent to issue an NPDES permit based on the reapplication. The draft permit had basically required that the permittees implement their own proposals which are discussed in the more detail in the reapplication. Appendix 1 of the draft permit also set forth certain additional pollution control measures which USEPA Region IX believed would be needed to ensure compliance with the MEP standard. The draft permit required that these additional controls be implemented by the permittees as well as their own proposals.

After considering the comments received during the public comment period, USEPA Region IX prepared and is issuing a final NPDES permit which differs only slightly from the draft permit. The differences primarily relate to the requirements for non-storm water discharges and are discussed in more detail later in this fact sheet and in the response to public comments which also accompanies the final permit.

I. BACKGROUND

A. Water Quality Act of 1987

The 1987 Water Quality Act (WQA) amended the Clean Water Act (CWA) by adding section 402(p) which requires that NPDES permits be issued for the following five categories of storm water discharges:

- (1) discharges permitted prior to February 4, 1987;
- (2) discharges associated with industrial activity;
- (3) discharges from large municipal separate storm sewer systems (MS4s) (systems serving a population of 250,000 or more);
- (4) discharges from medium MS4s (systems serving a population of 100,000 or more, but less than 250,000); and
- (5) discharges judged by the permitting authority to be significant sources of pollutants or which contribute to a violation of a water quality standard.

The five categories listed above are generally referred to as Phase I of the storm water program. The program also includes a Phase II, which includes all discharges not included in Phase I. EPA has recently proposed regulations for Phase II sources (63 Fed. Reg. 1536, January 9, 1998). These regulations are scheduled to be finalized by October 29, 1999¹.

The 1987 WQA also clarified that industrial storm water discharges are subject to the BAT/BCT requirements of the CWA and applicable water quality standards. For MS4s, the WQA specifies a new technology-related level of control for pollutants in the discharges - control to the maximum extent practicable (MEP). However, the WQA is silent on the issue of compliance with water quality standards for MS4 discharges and this has given rise to the argument that Congress did not intend for water quality standards to apply to MS4s. In January, 1991, EPA's Office of General Counsel reviewed this issue and concluded that the correct reading of the CWA is that water quality standards apply to municipal as well as industrial storm water discharges.

B. Water Quality Concerns

The 1987 decision by Congress to require NPDES permitting for the storm water discharges listed above was based on a growing awareness of the environmental significance of nonpoint sources of pollutants. For example, EPA's report entitled "National Water Quality Inventory, 1996 Report to Congress" (EPA, 1998) shows that nonpoint sources, including storm water runoff, are the leading cause of existing water quality impairments.

¹ The proposal of January 9, 1998 had indicated that the Phase II regulations would be promulgated by March 1, 1999 in accordance with a consent decree. However, EPA has recently negotiated an extension of this deadline until October 29, 1999.



ATTACHMENT 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

In Reply

Refer to: WTR-5

MAR 25 1998

John H. Robertus
Executive Officer
California Regional Water Quality Control
Board, San Diego Region
9771 Clairemont Mesa Blvd, Suite A
San Diego, CA 92124-1324

Re: NPDES Permit No. CAS0108766 for Riverside County and Co-Permittees

Dear Mr. Robertus:

The purpose of this letter is to advise the San Diego Regional Water Quality Control Board (SDRWQCB) that we believe that certain provisions of draft NPDES permit No. CAS0108766 are inconsistent with the requirements of the Clean Water Act (CWA) and its implementing regulations. We must, therefore, object to the issuance of the permit as it is. The draft permit is scheduled for adoption on April 8, 1998, and would authorize storm water discharges from the municipal separate storm water system (MS4) operated by Riverside County and several co-permittees within the jurisdiction of the SDRWQCB. As you know, NPDES regulations at 40 CFR § 123.44 and Region 9's Memorandum of Agreement with the State Water Resources Control Board (SWRCB) provide that Region 9 may object to a State-issued NPDES permit under certain circumstances.

Our concerns regarding draft permit No. CAS0108766 pertain to the receiving water limitations (RWLs) included in Condition E. Aside from minor editorial changes, the RWLs language in the draft permit is the same as the language which the SWRCB adopted on January 22, 1998 (Order WQ 98-01) with the intent that the language would be required in all future MS4 permits issued in the State. However, in letters to the SWRCB dated January 21, 1998 and March 17, 1998 (enclosed), Region 9 expressed concern regarding this language and advised the SWRCB of our intent to object to future MS4 permits which include the language.

NPDES regulations at 40 CFR §§ 123.44(c)(1) through (9) set forth the specific grounds upon which an objection to an NPDES permit must be based. The regulations at 40 CFR § 123.44(c)(8) provide that an objection may be based on a permit's failure to ensure compliance with any of the requirements of 40 CFR § 122.44(d). Condition E.2 of the draft permit would only regulate storm water discharges which "cause or substantially (in more than a *de minimis*

amount) contribute to a continuing or recurring exceedance" of an applicable water quality standard. However, as noted in our letter of March 17, 1998 to the SWRCB, NPDES regulations at 40 CFR § 122.44(d)(1)(i) require that permits regulate "all pollutants or pollutant parameters . . . which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard" The requirements of 40 CFR § 122.44(d)(1)(i) are applicable to *all* excursions above standards, not just excursions which are "continuing or recurring" and which the permittee causes or "substantially (in more than a *de minimis* amount)" contributes to, as provided by Condition E.2 of the draft permit. As such, Condition E.2 of the draft permit would not comply with 40 CFR § 122.44(d)(1)(i) and would constitute grounds for an objection to the permit.

NPDES regulations at 40 CFR § 123.44(c)(7) also provide for an objection if "the proposed permit would in any other respect be outside the requirements of CWA, or regulations issued under CWA." Our letters to the SWRCB of January 21, 1998 and March 17, 1998 note that the language of Condition E.2 of the draft permit would unacceptably increase the burden of proof in establishing permit violations. We point out that to enforce the permit, a showing would have to be made that the exceedances were "continuing or recurring" and that the permittee either caused the exceedances or contributed "substantially (in more than a *de minimis* amount)" to the exceedances. NPDES regulations at 40 CFR § 123.27(b)(2) require that the "burden of proof and degree of knowledge or intent required under State law for establishing violations . . . shall be no greater than the burden of proof or degree of knowledge or intent EPA must provide when it brings an action" under the CWA. Since EPA would not have to meet the threshold requirements in Condition E.2 of the draft permit in order to establish a violation of a permit that properly required the permittee to meet all water quality standards, the language would be inconsistent with 40 CFR § 123.27(b)(2), and would constitute grounds for objecting to the permit. Region 9's concern is that by complicating the establishment of a violation, we undermine the enforcement program. This in turn weakens the regulatory process which we as regulatory agencies rely on to carry out our mission.

NPDES regulations at 40 CFR § 123.44(b)(2)(ii) also require that when objecting to a permit, Region 9 must specify conditions which would be acceptable. In a letter dated January 16, 1998 to the SWRCB (enclosed), we proposed alternative RWLs language for MS4 permits which we could accept. The proposed language in the January 16, 1998 letter is similar to Condition E.2 in the draft permit, but without the qualifiers "substantially (in more than a *de minimis* amount)" and "continuing or recurring." We have subsequently made certain revisions to our January 16, 1998 proposal which are enclosed for your consideration (see proposal dated March 9, 1998). Our revised proposal would require compliance with water quality standards, but also provide that if exceedances of standards occur, the SDRWQCB need not require a permittee to upgrade their storm water management program provided the exceedances are not "continuing or recurring", or if the permittee's contribution to the exceedances is not "substantial (in more than a *de minimis* amount)." We believe that this provision would comply with the CWA, while simultaneously reducing the potential burden on permittees. Our new proposal also


-3-

includes certain revisions to paragraph 3 to bring it more in line with the language in the Order WQ 98-01 adopted by the SWRCB, and Condition E.3 of the draft permit.

To avoid a veto and subsequent takeover of the permit by Region 9, we recommend that the SDRWQCB consider for the final permit the revised proposal for RWLs language which is enclosed in this letter. We are also open to additional suggestions and are willing to work with all interested parties in the development of suitable alternative language.

Thank you for the opportunity to review and comment on the draft permit for Riverside County and its co-permittees. If have any questions regarding this matter, please call me at (415) 744-1860 or refer your staff to Eugene Bromley of the CWA Standards and Permits Office at (415) 744-1906.

Sincerely,


Alexis Strauss
Acting Director
Water Division

Enclosures

cc: *Riverside County*

cc: Bruce Fujimoto, State Board

Craig Wilson, State Board

Walt Pettit, State Board

Regional Board Executive Officers, Boards 1-8

Robert Hale, State Storm Water Quality Task Force

Libby Lucas, Environmental Health Coalition

Jeffrey Joseph, Caltrans

Richard Boon, Orange County

Frances L. McChesney, State Board

Greg Gearheart, SDRWQCB

Michael Cook, U.S. EPA



ATTACHMENT 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

In Reply
Refer to: WTR-5

MAY 26 1998

John H. Robertus
Executive Officer
California Regional Water Quality Control
Board, San Diego Region
9771 Clairemont Mesa Blvd, Suite A
San Diego, CA 92124-1324

1998 JUN -1 P 1:25
SAN DIEGO REGIONAL
WATER QUALITY
CONTROL BOARD

Re: NPDES Permit No. CAS0108766 for Riverside County and Co-Permittees

Dear Mr. Robertus:

The purpose of this letter is to formally notify the San Diego Regional Water Quality Control Board (SDRWQCB) that we are objecting to NPDES permit No. CAS0108766 which was adopted by the SDRWQCB on May 13, 1998. When effective, this permit would authorize storm water discharges from the municipal separate storm water system (MS4) operated by Riverside County and its co-permittees within the jurisdiction of the SDRWQCB. However, as noted in Condition F.32 of the permit, the effective date of the permit is stayed if Region 9 objects to the permit.

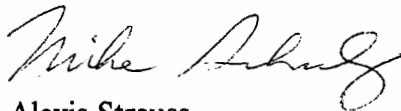
Region 9's objection to permit No. CAS0108766 is based on 40 CFR § 123.44(c)(1): "[t]he permit fails to apply, or to assure compliance with, any applicable requirements of this part." As explained in our letter of March 25, 1998 (enclosed), we concluded that the language in the permit pertaining to receiving water limitations (RWLs) would not comply with the Clean Water Act (CWA) and its implementing regulations. Specifically, Condition E.2 fails to assure compliance with 40 CFR § 122.44(d), which implements Section 301(b)(1)(C) of the CWA. In letters dated January 21, 1998 and March 17, 1998 (enclosed), we also explained to the State Water Resources Control Board (SWRCB) (with a copy to each Regional Board) why the RWLs language in permit No. CAS0108766 would not be acceptable. These three letters (to the SDRWQCB dated March 25, 1998, and to the SWRCB dated January 21, 1998 and March 17, 1998) are incorporated by reference in this formal notice of objection.

Region 9's Memorandum of Agreement with the SWRCB and NPDES regulations at 40 CFR § 123.44(h) provide 90 days from receipt of this letter for the SDRWQCB or the SWRCB to respond to Region 9's objection to a final permit. Otherwise, authority to issue the permit will pass to Region 9. The SDRWQCB, or any interested person, may also request a public hearing in accordance with 40 CFR § 123.44(e) to further review the objection.

We recognize that the RWLs language which the SDRWQCB included in permit No. CAS0108766 was a requirement of Order WQ 98-01 which was adopted by the SWRCB on January 22, 1998. However, as noted in our letter of March 17, 1998 to the SWRCB, we believe that the SWRCB may be willing to consider alternatives to the RWLs language in permit No. CAS0108766, despite the apparent precedent setting nature of WQ Order 98-01. Region 9 is also willing to work further with the SDRWQCB and all interested parties in the development of a suitable alternative to the RWLs language in permit No. CAS0108766. However, as noted above, authority to issue the permit will pass to Region 9 in accordance with 40 CFR § 123.44(h) if the issue cannot be resolved in a timely manner.

Thank you for the opportunity to review and comment on the final permit for Riverside County and its co-permittees. If have any questions regarding this matter, please call me at (415) 744-1860 or refer your staff to Eugene Bromley of the CWA Standards and Permits Office at (415) 744-1906.

Sincerely,



Alexis Strauss
Acting Director
Water Division



Enclosures

cc: Walt Pettit, State Board
Craig Wilson, State Board
Regional Board Executive Officers, Boards 1 through 8
Mark Wills, Riverside County Flood Control District
Robert Hale, State Storm Water Quality Task Force
Libby Lucas, Environmental Health Coalition
Frances L. McChesney, State Board
Greg Gearheart, SDRWQCB
Michael Cook, U.S. EPA
Bruce Fujimoto, State Board

ATTACHMENT

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RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL
	<p>COMMENT: <i>Implementation of the Tentative Order and its burdensome, untested regulations will be too costly.</i></p> <p>Comments were submitted by members of the Building Industry, Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressing concerns with costs to implement requirements. Commenters also generally expressed support for practical, cost-effective, and scientifically based regulation.</p> <p>Building Industry / Industry Associated General Contractors of America</p> <p>Community Planning Groups Jamul Dulzura Community Planning Group Julian Community Planning Group Pala Pauma Valley Community Sponsor Group Ramona Community Planning Group</p> <p>Copermittees County of San Diego San Diego County Fire Authority San Diego Unified Port District</p> <p>Environmental Organizations Clean Water Now</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCOM East Otay Mesa Property Owners Association Otay Mesa Property Owners Association San Diego Association of Realtors San Diego County Taxpayers Association South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. National Enterprises Inc. Nuffer, Smith, Tucker, Inc. Peter Hekman Jr. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL
	<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenters about the potential costs to implement the requirements, but disagrees that the requirements are burdensome and untested.</p> <p>Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits for Orange and Riverside Counties.</p> <p>The San Diego Water Board has put considerable effort into developing a draft Regional MS4 permit (referred to as the Tentative Order) that that will jointly cover thirty-nine (39) municipal, county government, and special district entities (Copermittees) in San Diego County , southern Orange County and southwest Riverside County. The Tentative Order significantly modifies the prescriptive action-based regulatory approach of the current municipal storm water permits to an outcome-based approach, with a focus on measuring and achieving improvements in MS4 discharges and receiving water quality. A key feature of the Tentative Order is that it provides an adaptive management pathway for the Copermittees to select and address the highest priority water quality issues through a non-punitive iterative process. The proposed adaptive management permit provisions have great promise and will allow the Copermittees to more flexibly deploy resources to achieve goals that will yield the greatest water quality improvements in the most effective and efficient manner to restore and protect the quality of the San Diego Region's receiving waters. The regional approach of the Tentative Order offers the opportunity to better achieve regulatory consistency as well as maximum efficiency and economy of resources for both the San Diego Water Board and the Copermittees.</p> <p>The San Diego Water Board has carefully considered costs of both the Tentative Order and the TMDLs included in the Tentative Order and found them to be necessary. Consideration of costs is discussed under the Economic Considerations in Section IV of the Fact Sheet. The commenters assert that the Tentative Order is too expensive, but do not consider the costs of not addressing impacts from discharges from the MS4. In addition, the San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits.</p> <p>The Tentative Order was developed over a two year period beginning in February 2011 through a participatory approach designed to actively engage key stakeholders, The transparent and comprehensive stakeholder participation process has resulted in a Tentative Order designed to be a strategic, cost-effective, and water</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL
	<p>quality outcome based permit. Strategic in that it allows for identifying the highest priority water quality conditions to be addressed first. Cost-effective in that the Copermittees are allowed to use their limited resources on the highest priority water quality conditions and can look for efficiencies on a watershed scale. The Tentative Order is water quality outcome based in that it has a clearly defined iterative and adaptive management process that fcuses on measuring and achieving improvements in MS4 discharges and receiving water quality. The Tenaitve Order evaluates success based on water quality monitoring data and assessment, not just completing a minimum number of actions without consideration if these actions are succeeding in improving water quality.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001
 March 27, 2013

Gnl-2 GENERAL	
<p>COMMENT: <i>Allow current permit requirements to remain in effect until Water Quality Improvement Plans are developed.</i></p> <p>Comments were submitted by members of the Building Industry, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally requesting that the Copermittees be allowed to continue implementing the current permit requirements until Water Quality Improvement Plans are developed and implemented.</p>	<p>Building Industry / Industry Associated General Contractors of America Otay Land Company</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCOM San Diego Association of Realtors</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
<p>RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements of the current permits should remain in effect until the Water Quality Improvement Plans are developed and accepted.</p> <p>The jurisdictional runoff management program requirements of the existing MS4 permits will remain in effect until the Water Quality Improvement Plans are developed and implemented. The introductory paragraph to Provision E states, <i>“Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.”</i> This includes the development planning requirements.</p> <p>The Copermittees, however, will be required to comply with the prohibitions and limitations, and implement the transitional monitoring requirements, transitional reporting requirements, and TMDL requirements upon adoption of the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-3 GENERAL	
	<p>COMMENT: <i>Regional MS4 Permit approach allowing prioritization may result in the neglect of parts of the watershed.</i></p> <p>The Environmental Groups and the South Laguna Civic Association submitted comments expressing support for the Regional MS4 Permit allowing the Copermittees to focus on priorities, but they also expressed concern that the approach may also result in the neglect of parts of the watersheds. The South Laguna Civic Association are particularly concerned that high value habitats and coastal receiving waters of the Aliso Creek watershed will continue to be impacted by runoff from residential developments. The Environmental Groups are concerned that there will be “orphaned” priorities, or one jurisdiction will carry most of the burden of implementing the water quality improvement strategies within the watershed.</p>
	<p>Environmental Organizations Environmental Groups South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board understands the concerns, but disagrees that the approach of the Regional MS4 Permit will result in the neglect of parts of the watershed.</p> <p>The San Diego Water Board developed the approach of the Regional MS4 Permit because the Copermittees are no longer focused on achieving outcomes of improved water quality, but compliance with actions that must be implemented. In effect, the current approach is actually resulting in the neglect of the entire watershed because of the “everything, everywhere” approach. When everything is a priority, nothing is a priority.</p> <p>In contrast, the approach of the Regional MS4 Permit is to re-focus the Copermittees’ efforts toward achieving outcomes that will result in improvements in MS4 discharges and receiving water quality. While not all priorities will be addressed immediately, all priorities will be addressed at some point. In allowing the Copermittees to focus on the highest priorities, lower priorities may also be addressed by the strategies being implemented to address the highest priorities. The requirements of the Tentative Order also include several elements that are intended to provide the San Diego Water Board and the public the information necessary to determine if each Copermittee is participating in implementing the Water Quality Improvement Plans.</p> <p>The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for the priority water quality conditions that should be addressed. By remaining involved, the environmental organizations can also understand the opportunities and constraints that are identified during the prioritization process.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-4 GENERAL	
	<p>COMMENT: <i>Meaningful enforcement of permit requirements is necessary to protect receiving waters.</i></p> <p>The San Diego Green Building Council, Laguna Bluebelt Association, and South Laguna Civic Association each submitted comments that the Tentative Order must include requirements that result in meaningful enforcement actions. Without requirements for meaningful enforcement actions, the commenters are concerned that discharges from the MS4 and dry weather flows will continue to degrade water quality.</p>
	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that meaningful enforcement actions are necessary to protect receiving waters.</p> <p>The requirements of the Tentative Order are all intended to result in the protection of the quality of receiving waters from MS4 discharges. The Tentative Order also includes requirements for the Copermittees to demonstrate that they are issuing enforcement actions in a timely manner to obtain compliance from sources that are discharging to their MS4s.</p> <p>Enforcement of the requirements of the Tentative Order by the San Diego Water Board may be necessary to compel the Copermittees to properly implement and enforce their legal authorities to adequately protect water quality. By issuing the Regional MS4 Permit, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-5 GENERAL	
<p>COMMENT: <i>Include requirements to develop maps or charts to track and monitor coastal receiving waters subject to MS4 runoff flows and impacts.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The South Laguna Civic Association would like an interactive map that identifies protected coastal receiving water resources and dominant littoral currents and counter currents to help identify distribution patterns of urban runoff induced algal plumes and thermal plumes.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board has considered the concept, but does not agree this requirement is appropriate or necessary to be included in the requirements of the Tentative Order.</p> <p>The San Diego Water Board understands the desire for such spatial and temporal information to be available in a visual format. However, the creation and maintenance of such map would require the collection and processing of data that is beyond the scope of what is required to be measured and reported for the purposes of the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-6 GENERAL		
	<p>COMMENT: <i>Increase use of recycled water to reduce need for imported water and discharges from MS4s.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the increasing the use of recycled water to reduce imported water demand. The commenters contend that increasing recycled water use will reduce discharges to the ocean.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board supports and promotes the use of recycled water.</p> <p>The Tentative Order does not prohibit the use of recycled water, but does limit the discharge of recycled water to receiving waters. The requirements of the Tentative Order do not specifically encourage the use of recycled water, nor is it appropriate for the Tentative Order to do so. Recycled water and the discharge of recycled water are regulated by the San Diego Water Board under separate regulatory mechanisms.</p> <p>The San Diego Water Board agrees that the recycling of wastewater, as well as recycling non-storm water discharges and retaining and using storm water runoff has the potential to reduce the need to import water to the San Diego Region. The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermitees for identifying opportunities to promote recycled water use and recycling of non-storm water and storm water discharges to and from the MS4.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-7 GENERAL	
	<p>COMMENT: <i>Portions of San Diego County in the Colorado River Region should not be subject to requirements of San Diego Region.</i></p> <p>The Julian Community Planning Group submitted a comment stating that the portion of San Diego County under the jurisdiction of the Colorado River Water Board should not be subject to the requirements of the Tentative Order.</p>
	<p>Community Planning Groups Julian Community Planning Group</p>
	<p>RESPONSE: The San Diego Water Board agrees.</p> <p>The requirements of the Tentative Order are only applicable to the portion of San Diego County within the jurisdiction of the San Diego Water Board.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-8 GENERAL	
	<p>COMMENT: <i>Urban runoff is the San Diego Region's most urgent pollution problem.</i></p> <p>Several Environmental Organizations, the San Diego Green Building Council, and Other Entities submitted comments stating that urban runoff is the San Diego Region's most urgent problem. Most of the commenters also acknowledged that it is a difficult problem to solve, but they are willing to work together to help solve the problem.</p>
	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Environmental Organizations The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Elijo Lagoon Conservancy</p> <p>Other Entities Curious Company Hector Valtierra</p>
	<p>RESPONSE: The San Diego Water Board agrees that runoff from developed and developing areas pose a significant problem to protecting water quality in the San Diego Region.</p> <p>The San Diego Water Board has developed the Regional MS4 Permit approach to allow the Copermittees to tap into the community and the resources the community is willing to provide to help address the problems associated with runoff from developed and developing areas. The San Diego Water Board encourages the community to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for identifying opportunities to the public for addressing problems associated with runoff from developed and developing areas.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-9 GENERAL	
<p>COMMENT: <i>The term "prohibit" should be changed to "effectively prohibit" throughout Tentative Order when referring to non-storm water discharges.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that the language of the Tentative Order be revised to "effectively prohibit" non-storm water discharges to the MS4 instead of just "prohibit" to be consistent with the language of the Clean Water Act. The Natural Resources Defense Council submitted comments that assert that the Clean Water Act and the Code of Federal Regulation require an absolute prohibition of non-storm water discharges, in any amount, to the MS4.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations Natural Resources Defense Council</p>
<p>RESPONSE: The San Diego Water Board agrees that the language of the Tentative Order should be consistent with the Clean Water Act and Code of Federal Regulations.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that non-storm water discharges are to be "effectively prohibited" to the MS4. The Code of Federal Regulations requires each Copermitee to have the legal authority to "prohibit" non-storm water discharges to the MS4. The Phase I Final Rule clarifies what "effectively prohibit" means (55 FR 47995): <i>"Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the municipal separate storm sewer.)"</i></p> <p>Where appropriate, the language in the Tentative Order has been revised to be consistent with the language of the Clean Water Act to include the term "effectively prohibit" instead of "prohibit" or "reduce and eliminate." In other cases, the language has been maintained to be consistent with the requirements of the Code of Federal Regulations requiring the Copermitees to establish the legal authority to "prohibit" non-storm water discharges to their MS4s and enforce that legal authority. The establishment and enforcement of the legal authority to "prohibit" non-storm water discharges to their MS4s is how the Copermitees will "effectively prohibit" non-storm water discharges to their MS4s.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-10 GENERAL	
<p>COMMENT: <i>The requirements of the Tentative Order do not allow Copermittees to adaptively manage their programs.</i></p> <p>The Riverside County Copermittees submitted comments contending that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs. In particular, the Riverside County Copermittees cite the prohibitions and limitations of Provision A and the development planning requirements of Provision E.3 as requirements that will limit their ability to adaptively manage.</p>	<p>Copermittees Riverside County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs.</p> <p>The approach used in developing the requirements in the Tentative Order departs significantly from the approach used in developing the requirements of previous and current permits. The current MS4 permits essentially prescribe the programs that must be implemented by each Copermittee, resulting in a focus on complying with the implementation of required actions. The current permits provide the Copermittees little or no ability to adaptively manage the programs to become more focused on achieving outcomes.</p> <p>In contrast, the requirements of the Tentative Order allow the Copermittees to strategically plan by identifying the highest priority pollutants or conditions in a specific watershed, goals and strategies to address those pollutants or conditions, and resources to implement the strategies. Furthermore, the Copermittees are provided the monitoring and assessment information that allows them to determine when those priorities, goals and strategies should be adjusted or are no longer appropriate. The Tentative Order is predicated on a new emphasis on water quality based outcomes (i.e., restoration or protection of water quality and beneficial uses) instead of a prescriptive action based regulatory approach (e.g., implementation of programs).</p> <p>The flexibility that is provided in the Tentative Order should not be mistaken as the San Diego Water Board wishing to grant full autonomy to the Copermittees to implement their jurisdictional runoff management programs. The requirements of the Clean Water Act and the Code of Federal Regulations must still be incorporated into the requirements of the Tentative Order. The Code of Federal Regulations includes several program components that must be implemented by the Copermittees. The USEPA has also provided guidance as to what minimum requirements should be included in those programs.</p> <p>The San Diego Water Board must balance the Copermittees' desire to have more flexibility to adjust their</p>	

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Gnl-10	GENERAL	
	<p>programs with the statutory requirements of the Clean Water Act and the California Water Code which hold the Copermitees accountable for compliance with a minimum set of requirements that are enforceable. Given that the Tentative Order already provides the Copermitees great latitude in adjusting their programs to focus their resources on achieving improved water quality, the San Diego Water Board has extended that flexibility further by incorporating additional opportunities into the revised Tentative Order for identifying and implementing more watershed-specific requirements in areas of the Tentative Order where the Copermitees perceive and assert there is little to no flexibility provided. Please see responses to comments A-1 and E3c-2.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-11 GENERAL	
<p>COMMENT: <i>Implementation of current permit requirements and accomplishments of Orange and Riverside County Copermittees not being considered.</i></p> <p>The Orange County and Riverside County Copermittees each submitted comments expressing concern that the Tentative Order has been developed without considering the programs and plans being developed under their current permit requirements, and does not acknowledge the accomplishments achieved by the Copermittees during the previous and current permit terms. In addition, the Orange County and Riverside County Copermittees each submitted comments that they must have an opportunity to propose changes to the requirements of the Tentative Order through the Report of Waste Discharge.</p> <p>The San Diego Green Building Council recommended that the Tentative Order also take into account successes that have been achieved in other jurisdictions outside of the San Diego Region.</p>	<p>Building Industry / Industry Copermittees San Diego Green Building Council Orange County Copermittees Riverside County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order does not consider the implementation of current permit requirements, and accomplishments and successes of the Orange County and Riverside County Copermittees and other jurisdictions.</p> <p>Most of the requirements included in the Tentative Order are also in the current permits issued to the Orange County and Riverside Copermittees (Order Nos. R9-2009-0002 and R9-2010-0016). The current permits issued to the Orange County and Riverside County Copermittees include prohibitions and limitations, numeric action levels, and the same jurisdictional runoff management program components. The structural BMP performance standards (i.e. storm water pollutant control retention and hydromodification management) are effectively the same as in the Orange County and Riverside County MS4 permits. The Watershed Workplans of the current permits are very similar to, and are expected to serve as the basis of the Water Quality Improvement Plans. The monitoring program requirements are very similar, with potential reductions of monitoring requirements in several instances. The reporting requirements in the Tentative Order have actually been significantly reduced compared to the current permits.</p> <p>The San Diego Water Board expects the Orange County and Riverside County Copermittees' implementation of their current permit requirements will make the transition from to the Tentative Order much easier than the San Diego County Copermittees because so many of the MS4 permit requirements are similar, and in many cases more prescriptive, than the requirements of the Tentative Order. The flexibility of the requirements of the Tentative Order compared to their current permit requirements will provide the Orange County and Riverside</p>	

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Gnl-11 GENERAL

County Copermittees many opportunities to identify more effective and efficient ways to utilize their resources to improve water quality. However, until the Orange County and Riverside County Copermittees obtain coverage under the Tentative Order, they will remain subject to the more prescriptive requirements of their current permits.

Furthermore, the requirements of the Tentative Order were developed with a strong consideration of the current permit requirements being implemented by the Orange County and Riverside County Copermittees, as well the accomplishments of all the Copermittees in the San Diego Region. In fact, the Tentative Order was developed and improved based on comments received from the Orange County and Riverside County Copermittees during the 18 month administrative draft focused meeting and comment process.

The Tentative Order was also developed considering the accomplishments and successes of other jurisdictions outside of the San Diego Region. The basis of incorporating an allowance for implementing a true iterative and adaptive management process is because of the accomplishments, successes, and failures observed by the San Diego Region's Copermittees, as well as those observed in other jurisdictions within California and other states. By allowing a true iterative and adaptive management process to be implemented, the San Diego Water Board expects the Copermittees to not only learn from each other's successes and failures within the San Diego Region, but the successes and failures from other jurisdictions outside the San Diego Region.

The fact of the matter is that the requirements of the Tentative Order are more similar to the current permits issued to the Orange County and Riverside Copermittees than the current permit issued to the San Diego County Copermittees (Order No. R9-2007-0001). This is because most of these elements in the Tentative Order were developed based on the requirements in the current Orange County and Riverside County MS4 permits. The Tentative Order also allows the Orange County and Riverside County Copermittees to provide additional recommendations and propose changes for consideration by the Board based on their experiences and successes when they submit their Report of Waste Discharge for coverage under the Regional MS4 Permit.

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Gnl-12 GENERAL	
	<p>COMMENT: <i>Updating the Basin Plan needs to be a priority of the San Diego Water Board.</i></p> <p>The Riverside County Copermittees commented that the San Diego Water Board should make updating the Basin Plan with water quality objectives based on background conditions, beneficial uses of specific water bodies, and specific conditions that influence the water bodies a priority. The Riverside County Copermittees contend that without the updates, the desired outcomes the Copermittees include in the Water Quality Improvement Plans will be arbitrary and may not achieve desired beneficial use improvements, or be appropriate.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that updating the Basin Plan should be a priority. Updating the Basin Plan, however, is not within the scope of developing and issuing the Tentative Order.</p> <p>On many occasions, dischargers have asserted that the water quality standards are not achievable, and because they are not achievable they are not appropriate. The San Diego Water Board disagrees. The water quality standards in the Basin Plan are protective of water quality and are therefore appropriate. The San Diego Water Board maintains that because they are appropriate, they must be achieved to protect water quality.</p> <p>If the Copermittees believe a different water quality objective is appropriate and will protect water quality, the San Diego Water Board recommends that the Copermittees collect the data and develop the evidence to support a different water quality objective to be incorporated into the Basin Plan through an amendment to the Basin Plan. Until then, the water quality standards in the Basin Plan are considered appropriate and must be implemented in MS4 permits.</p>

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Gnl-13 GENERAL
<p>COMMENT: <i>"Clarify" responsibilities of the Copermitees under the Tentative Order.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that the requirements of the Tentative Order "clarify" the responsibilities of the Copermitees, consistent with the requirements of the Clean Water Act. The Copermitees requested revisions throughout the requirements of the Tentative Order to specify that the Copermitees must "effectively prohibit" non-storm water discharges "into the MS4" instead of "into and from the MS4," and control the discharge of "pollutants" not "pollutants in storm water" from the MS4 to the MEP. The Copermitees also requested including several qualifying phrases that the Copermitees could only operate "to the extent allowable" or "as applicable" or other such phrases to "clarify" the Copermitees were only responsible for implementing requirements subject to their legal authority</p> <p>The Natural Resources Defense Council (NRDC) expressed concern that the non-storm water action levels (NALs) may violate the effective prohibition of non-storm water discharges to the MS4. The NRDC requested that the Tentative Order be very clear that the Copermitees are responsible for prohibiting non-storm water discharges to the MS4.</p> <p>The Orange County and Riverside County Copermitees objected to language in the Tentative Order that implied the Copermitees were responsible for "enhancing" and "restoring" water quality in receiving waters, contending that they are only responsible for the discharges from their MS4s. The Orange County Copermitees also objected to the requirements for the Copermitees to evaluate stream channels for restoration, asserting the Copermitees are not responsible for restoring stream channels.</p> <p>The San Diego Unified Port District supported including requirements that result in jurisdictional accountability, recognizing that most of the discharges from the MS4 to San Diego Bay originate from upstream jurisdictions. The San Diego Unified Port District also provided requests for modifications to specify the downstream owners and operators of the MS4 are not responsible and should not be held liable for discharges and pollutants in discharges originating from upstream MS4s. The San Diego Unified Port District requested that the Tentative Order include requirements for the San Diego Water Board to demonstrate a Copermitee caused or contributed to an exceedance of water quality standards. The San Diego Unified Port District also encouraged the San Diego Water Board to include additional monitoring to ensure jurisdictional accountability.</p>

- Copermitees**
 Orange County Copermitees
 Riverside County Copermitees
 San Diego County Copermitees
 San Diego Unified Port District
 San Diego Unified Port District /
 Brown and Winters
- Environmental Organizations**
 Natural Resources Defense Council

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-13 GENERAL

RESPONSE: The San Diego Water Board reviewed and considered the recommendations and requests.

The San Diego Water Board has revised the language in the Tentative Order to emphasize the Copermittees are responsible for “effectively prohibiting” non-storm water discharges “to the MS4.” The language has not been revised from the control of “pollutants in storm water” to “pollutants” from the MS4 to the MEP. The San Diego Water Board maintains that the Copermittees are required to control “pollutants in storm water” to the MEP. Pollutants in non-storm water discharges are controlled through the effective prohibition of non-storm water discharges to the MS4. Please see the response to comments Gnl-9 and Fnd-3.

The Tentative Order has also been revised to replace any language of “restoring water quality standards in receiving waters” to “protecting water quality standards in receiving waters from MS4 discharges.”

The San Diego Water Board generally did not revise the language with the qualifying phrases requested by the Copermittees. The Copermittees are required to establish the legal authority to implement the requirements of the Tentative Order. The Tentative Order does not require the Copermittees to implement requirements outside of their jurisdictions or outside of their legal authority. Please see response to comments E1-1 and E1-2.

The San Diego Water Board appreciates the support expressed for the requirements that result in jurisdictional accountability. The San Diego Water Board agrees that the requirements of the Tentative Order must provide the San Diego Water Board the information necessary to account for each individual Copermittee’s contribution toward improving or degrading water quality. This information will allow the San Diego Water Board to provide support to improve the Copermittee’s programs, where needed, and the evidence necessary to enforce the requirements of the Tentative Order, when appropriate.

The San Diego Water Board generally disagreed with the modifications to the Tentative Order requested by the San Diego Unified Port District. The San Diego Water Board maintains that the Copermittees are responsible for the discharges from their MS4s to receiving waters. If there are sources that originate from outside a Copermittee’s jurisdiction, it is the Copermittee’s responsibility to demonstrate to the San Diego Water Board that the source is outside of the Copermittee’s legal authority to control.

The San Diego Water Board considered the request by the San Diego Unified Port District for additional monitoring to ensure jurisdictional accountability. The San Diego Water Board included additional monitoring for this purpose. Please see response to comment D-5.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Gnl-14 GENERAL	
	<p>COMMENT: <i>Request for consistency in MS4 permit requirements for Copermittees under the jurisdiction of multiple Regional Water Boards.</i></p> <p>The Orange County Copermittees submitted comments requesting that the requirements in the Tentative Order be as consistent as possible with requirements in MS4 permits from other Regional Water Boards. The Orange County Copermittees include 5 municipalities that are split between 2 Regional Water Boards. The Orange County Copermittees provided recommended revisions to the Tentative Order aimed at creating greater uniformity and implementability for these 5 municipalities under two MS4 permits.</p>
	<p>Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board has reviewed and considered the recommended revisions.</p> <p>The San Diego Water Board understands implementing requirements that are not consistent between multiple Regional Water Board permits can present some challenges for a Copermittee. The requirements in the Tentative Order provide significantly more flexibility that will allow a Copermittee to align the implementation of its programs with the requirements of different permit requirements.</p> <p>The San Diego Water Board, however, has not and will not modify any requirements in the Tentative Order to reduce the accountability, enforceability or protectiveness to be more consistent with another Regional Water Board's permit requirements. For those areas of the MS4 permits where there are inconsistent requirements, the solution for the Copermittee would be to develop jurisdictional runoff management programs that implement the most protective elements of both Regional Water Boards' permit requirements and apply them throughout its jurisdiction. In doing so, the Copermittee will be in compliance with the requirements of both MS4 permits and have programs that will be most protective of water quality.</p>

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Gnl-15 GENERAL	
	<p>COMMENT: <i>Findings and Fact Sheet do not provide adequate justification for new or modified requirements.</i></p> <p>The Building Industry Association of Southern California and the Orange County Copermittees submitted comments asserting that the Findings and the Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order. The Building Industry Association of Southern California is particularly interested in the justification for the development planning structural BMP performance standards. The Orange County Copermittees provided examples of several specific requirements in the Tentative Order that they assert were not adequately justified.</p>
	<p>Building Industry / Industry Building Industry Association of Southern California Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the Findings and Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order.</p> <p>The San Diego Water Board understands that the commenters may not be satisfied with the justification for the requirements of the Tentative Order provided in the Findings and Fact Sheet. The San Diego Water Board maintains that the Findings and the Fact Sheet provide the background information, regulatory and legal citations, references and additional explanatory information and data in support of all the Findings and requirements in the Tentative Order.</p>

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Gnl-16 GENERAL	
	<p>COMMENT: <i>Recommendation for revising numbering system in the Tentative Order.</i></p> <p>The Orange County Copermitees submitted comments recommending that the numbering system of the provisions in the Tentative Order provide the full number of the provision (e.g. A.1 instead of 1). The recommended revisions would assist and better orient the reader.</p>
	<p>Copermitees Orange County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board appreciates the recommendation.</p> <p>The San Diego Water Board understands that the length and the numerous subsections of the provisions in the Tentative Order can be difficult to navigate at times. The San Diego Water Board has included footers to assist the reader in navigating through the provisions of the Tentative Order. Additionally, the electronic PDF version of the Tentative Order will have bookmarks for the major provisions to assist in navigating the requirements of the Tentative Order.</p>

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Gnl-17 GENERAL	
	<p>COMMENT: <i>Requests for changes to schedules and deadlines in the Tentative Order.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the schedules and deadlines for developing, submitting, and implementing several requirements in the Tentative Order. In particular, the requests were focused on additional time for developing the Water Quality Improvement Plans. The San Diego Unified Port District supported the requests. The BIA Regulated Community Coalition and Environmental Groups each submitted comments with recommendations to include more time for public participation during the development of the Water Quality Improvement Plans.</p> <p>The commenters provided several recommendations for modifications to the schedules and deadlines in the Tentative Order that would result in more time to develop and implement the Water Quality Improvement Plans and the monitoring and assessment programs.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the recommendations to change the schedules and deadlines in the Tentative Order.</p> <p>The San Diego Water Board generally agrees that additional time should be provided to develop the Water Quality Improvement Plans, to allow for a robust public participation process and to provide enough time to implement the optional requirements that have been included in the revised Tentative Order if the Copermittees choose to do so. The San Diego Water Board modified many of the schedules to provide additional flexibility in scheduling the development of several deliverables, as well as including later deadlines for submitting several deliverables. The requirements have also been modified to allow the Copermittees more control in developing the schedules for implementing the monitoring requirements in the Water Quality Improvement Plans.</p> <p>Please see the revisions to Provisions B.3 and F.1 in the revised Tentative Order, as well as the responses to comments B-3 and F1-1.</p>

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Gnl-18 GENERAL	
	<p>COMMENT: <i>Requests for additional opportunities to provide comments.</i></p> <p>The Riverside County Copermittees, Clean Water Now, and Environmental Groups each submitted comments expressing interest in additional opportunities to provide comments. The Riverside County Copermittees requested an additional public review and comment period after the Tentative Order is revised and the responses to comments are released by the San Diego Water Board. Clean Water Now expressed disappointment with the focused meeting process used in the development of the Tentative Order, and the lack of time available to have protracted discussions. The Environmental Groups requested additional opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plans.</p>
	<p>Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Clean Water Now Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board considered the requests for additional opportunities to provide comments.</p> <p>The San Diego Water Board disagrees that an additional public review and comment period needs to be provided after the revised Tentative Order and responses to comments are released. Federal regulations only require that the San Diego Water Board provide at least 30 days for public comment on the Tentative Order. The lengthy public review and comment period that was provided for the Tentative Order complies with and exceeds the statutory and regulatory requirements for bringing the Tentative Order before the Board for consideration and adoption. The San Diego Water Board released an administrative draft of the Tentative Order in April 2012, which went through a 5 month review and comment period, with several focused meetings to discuss the requirements. The administrative draft of the Tentative Order was significantly revised based on the comments and information received during the focused meetings and written comments received. The Tentative Order was released in October 2012 and the public comment period was closed in January 2013. The revised Tentative Order will be the third draft of the permit, with a second round of revisions, and revisions reflected in it were made in direct response to written comments received by the San Diego Water Board. The San Diego Water Board has already provided multiple opportunities to comment on the Tentative Order. An additional opportunity to submit written comments is not required or necessary. There will be an opportunity to make oral comments on the revisions to the Tentative Order at the San Diego Water Board hearing.</p> <p>The San Diego Water Board understands that the commenter wished to have more lengthy discussions during the focused meetings that were held during the administrative draft review and comment period. With the exception of the commenter, the San Diego Water Board has received very positive feedback on the focused</p>

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meetings that were held. The focused meeting process was above and beyond what is required and the discussions that did take place were more inclusive than previous permit renewal processes. At each focused meeting the San Diego Water Board also extended invitations to everyone present for additional meetings outside the focused meetings. The San Diego Water Board had multiple additional in depth discussions with several groups outside of the focused meeting process on specific topics. If the commenter had contacted the San Diego Water Board for an additional meeting, the San Diego Water Board could have scheduled a meeting with the commenter to have more in depth discussions.

The San Diego Water Board agrees that additional opportunities should be provided to the public to participate and comment during the development of the Water Quality Improvement Plans. The San Diego Water Board disagrees that Water Quality Improvement Plans are equivalent in meaning to “water quality control plans” as defined in Water Code section 13050, subdivision (j), requiring a public hearing for the acceptance of the Water Quality Improvement Plans. Please see response to comment B-3.

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Gnl-19 GENERAL	
	<p>COMMENT: <i>The maximum extent practicable (MEP) standard is the floor, not the limit, for MS4 permit requirements.</i></p> <p>The Natural Resources Defense Council (NRDC) submitted comments asserting that the San Diego Water Board has the authority to include MS4 permit requirements that are more stringent than the MEP standard if necessary to ensure that discharges from the Copermittees' MS4s do not cause or contribute to exceedances of water quality standards in receiving waters. The NRDC cited several court decisions that support their position that the MEP standard is the floor for MS4 permit requirements, and the San Diego Water Board has the authority to impose additional more stringent requirements over and above MEP as determined to be appropriate.</p>
	<p>Environmental Organizations Natural Resources Defense Council</p>
	<p>RESPONSE: The San Diego Water Board agrees that the MEP standard is the floor for permit requirements.</p> <p>In concept, the MEP standard is supposed to evolve and improve and become more stringent over time through an iterative process. In reality, in the current and previous permits issued by the San Diego Water Board, the MEP standard was essentially defined by the requirements of the MS4 permit and the iterative process only occurred when an MS4 permit was renewed by incorporating additional and more stringent requirements. Thus, the MEP standard became static rather than dynamic for each permit term, and only advanced with each permit renewal. This has resulted in multiple MS4 permits by the San Diego Water Board that have different requirements, each a little more stringent than the last one issued.</p> <p>In the Tentative Order the San Diego Water Board has incorporated a new regulatory approach that is expected to result in a more dynamic iterative process to advance the MEP standard during the permit term. Instead of dictating the actions that must be implemented by the Copermittees, and defining the MEP "floor" of requirements that will be utilized to determine compliance, the requirements of the Tentative Order define the iterative process that must be implemented to achieve water quality improvement outcomes through an ever advancing and improving MEP standard.</p> <p>With the exception of the TMDL requirements, the San Diego Water Board disagrees it is necessary to include requirements that are more stringent than the MEP standard. The approach incorporated into the Tentative Order redefines the MEP "floor" from being a "static floor" to a "dynamic floor" that is expected to rise as the Copermittees learn from their failures and successes while working toward achieving tangible improvements in water quality.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-20 GENERAL	
	<p>COMMENT: <i>Include graphical representation of areas covered by the Tentative Order.</i></p> <p>The San Diego Green Building Council submitted comments recommending that the final permit include a graphic representation of both the political and natural boundaries related to the area under the jurisdiction of the Order.</p>
	<p>Building Industry / Industry San Diego Green Building Council</p>
	<p>RESPONSE: The San Diego Water Board appreciates the recommendation.</p> <p>Including a graphical representation of the area under the jurisdiction of the Tentative Order is not necessary. The Tentative Order is expected to cover all the Phase I municipalities in the San Diego Region in a phased manner. The Tentative Order will no longer be issued to three separate counties or include requirements separated by political boundaries.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-21	GENERAL	
	<p>COMMENT: <i>Federal regulations require that the term of the Tentative Order not exceed five years.</i></p> <p>The USEPA submitted comments that expressed concern that the San Diego Water Board was considering a permit term longer than five years. The USEPA supported a permit term that does not exceed five years.</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees that the term of the permit will not exceed five years.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-22 GENERAL	
<p>COMMENT: <i>Identification of grammatical and typographical errors.</i></p> <p>The San Diego County Copermittees submitted comments noting several grammatical and typographical errors in the text of the Tentative Order that should be corrected.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board appreciates the identification of grammatical and typographical errors.</p> <p>The San Diego Water Board has corrected the grammatical and typographical errors identified by the commenter. The San Diego Water Board has corrected any grammatical and typographical errors to the extent possible in the revised Tentative Order. If there are additional grammatical and typographical errors identified in the revised Tentative Order after adoption, the San Diego Water Board can correct them without re-opening the adopted Order if they are considered minor modifications pursuant to the requirements of Provision H.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-1	LEGAL	
	<p>COMMENT: <i>Concerns with strict liability for exceedances of water quality standards and receiving water limitations.</i></p> <p>Comments were submitted by members of the Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressed concerns with the strict liability that the Copermittees are exposed to for exceedances of the water quality standards and receiving water limitations. The Copermittees submitted several comments that a recent Ninth Circuit Court of Appeals decision resulted in a new interpretation of precedential receiving water limitations language, or that it creates any new third party liability risks.</p>	<p>Community Planning Groups Jamul Dulzura Community Planning Group Ramona Community Planning Group</p> <p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego Unified Port District / Brown and Winters</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCOM San Diego Association of Realtors South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the recent Ninth Circuit Court of Appeals decision in NRDC v. County of Los Angeles (<i>Natural Resources Defense Council v. County of Los Angeles, et al.</i> (673 F.3d</p>	

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Lgl-1	LEGAL
	<p>1235 (9th Cir. 2011) (revd. on other grounds and remanded, <i>Los Angeles County Flood Control District v. Natural Resources Defense Council</i> (133 S.Ct. 710 (2013))), adopted a new interpretation of precedential receiving water limitations language or that it creates any new third party liability risks.</p> <p>Rather the Ninth Circuit's interpretation is consistent with the San Diego Water Board's interpretation of the precedential receiving water limitations language that affords the San Diego Water Board with discretion to take enforcement action for violations of receiving water limitations and discharge prohibitions and also allows for citizen suit enforcement – in other words, engagement in the iterative process does not create a safe harbor from liability for violations of water quality standards. In precedential orders, the State Water Board exercised its discretion to require compliance with water quality standards by directing that MS4 permits contain provision requiring discharges of pollutants in storm water to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters. (State Water Board Order WQ-98-01 (<i>Environmental Health Coalition</i>), and WQ 99-05 (<i>Environmental Health Coalition</i>.)</p> <p>Consistent with federal law, the State Water Board also found it appropriate to implement best management practices (BMPs) in lieu of imposing numeric water quality-based effluent limitations to meet water quality standards. (See SWRCB Orders WQ 91-03 (<i>Citizens for a Better Environment</i>), WQ 98-01 (<i>Environmental Health Coalition</i>), WQ 2001-15 (<i>Building Industry Association of San Diego County</i>); See also 40 CFR sec. 122.44(k); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, USEPA, September 1995.) In these orders and USEPA guidance, the State Water Board and USEPA recognize that the storm water program will evolve over time to incorporate more stringent limitations, including improved BMPs, to meet water quality standards or numeric water quality based effluent limitations.</p> <p>While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an "iterative process," using the State Water Board's precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a "safe harbor" for MS4 dischargers. Thus, the Ninth Circuit's recent opinion is consistent with the Water Boards' interpretation and does not create any new uncertainty or third party liability risks that did not previously exist.</p> <p>The San Diego Water Board recognizes and will continue to follow the State Water Board's process (commenced with a public workshop in November 2012) for reconsidering the precedential receiving water limits language and the possibility of creating a "safe harbor" from enforcement for violations of water quality</p>

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Lgl-1	LEGAL
	standards while an MS4 discharger engages in an iterative process of improving its controls and practices. However, the Tentative Order has been revised to provide a discharge prohibitions and receiving water limitations compliances option. Please see response to comment A-1.

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Lgl-2	LEGAL	
	<p>COMMENT: <i>Concerns with the Copermitees' legal authority to impose requirements on development projects where a nexus between impact on the receiving water and the project cannot be established.</i></p> <p>Comments were submitted by members of the Copermitees, Societies/ Associations/Coalitions, and Other Entities generally expressed concerns with the Copermitees' legal authority to imposed requirements on development projects where a nexus between impact on the receiving water and the project cannot be established. The Copermitees assert that they would be subject to liability under takings clauses of the US and California Constitutions and the Mitigation Fee Act for requiring hydromodification management BMP requirements on new development or redevelopment projects that discharge to hardened channels where a hydromodification impact would be questionable and difficult to establish. Comments from the Societies/ Associations/Coalitions assert that allowing an in lieu fee for improvements to Priority Development Projects that do not cause hydromodification impacts is a direct violation of CEQA.</p> <p>In contrast, the South Laguna Civic Association asserts that the regulatory and legal nexus is clear between MS4 discharges and creek erosion and infrastructure damage, ocean pollution and public health hazards.</p>	<p>Copermitees City of Dana Point City of Imperial Beach City of Rancho Santa Margarita City of San Diego City Attorney County of San Diego Office of County Counsel Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations South Laguna Civic Association</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
	<p>RESPONSE: The San Diego Water Board recognizes the concerns of about the Copermitees' legal authority to impose hydromodification management requirements on development that causes no hydromodification impacts.</p> <p>Federal law mandates that permits issued to MS4s require management practices that will result in reducing pollutants to the maximum extent practicable. The state is required, by law, to select the BMPs. (See <i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292; <i>Environmental Defense Center v. USEPA</i> (9th Cir. 2002) 344 F.3d 832, 855; <i>Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region</i> (2006) 135 Cal.App.4th 1377, 1389.) The Tentative Order's requirements for Low Impact Development and hydromodification management controls are authorized by federal law. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermitees develop and implement a management program which is to include "A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed."</p> <p>The Tentative Order does not impose land use regulations, nor does it restrict or control local land-use decision-</p>	

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Lgl-2	LEGAL
	<p>making authority. Rather, the Tentative Order requires the permittees to fulfill Clean Water Act requirements and protect water quality in their land use decisions. The requirements in the Tentative Order allow for flexibility in compliance options to the extent allowable under the Clean Water Act. The substantive regulatory requirements of the Clean Water Act are a valid exercise of the federal government's enumerated powers and authority over navigable waters. (<i>NRDC v. USEPA</i> (9th Cir. 1998) 863 F.2d 1420, 1436.)</p> <p>Environmental regulation is not land use regulation, and therefore does not infringe upon local authority over land use decisions. (<i>California Coastal Commission v. Granite Rock</i> (1987) 480 U.S. 572. In addition, local land use planning must be consistent with general statewide laws. (<i>County of Los Angeles v. California State Water Resources Control Board</i> (2006) 143 Cal.App.4th 985, 1003.) Article 11, section 7, of the California Constitution states that a county or city may not enact laws that conflict with general laws. The Porter-Cologne Water Quality Control Act contains the California Legislature's finding that water quality is a matter of state-wide concern, requiring a statewide program administered at a regional level. (See, e.g., <i>Wat. Code</i>, § 13000; see also generally <i>Southern California Edison v. State Water Resources Control Board</i> (1981) 116 Cal.App.3d 751, 758.) Section 101 of the CWA has a companion policy statement, where Congress found that water quality is a matter of federal concern.</p> <p>The Tentative Order also does not dictate specific methods of compliance or dictate the manner in which the Copermittees use their land. Where the Tentative Order includes detailed requirements, it is to comply with the Clean Water Act and its regulations. USEPA's regulations mandate that certain requirements be included in MS4 permits in order to achieve the requirements of the Clean Water Act. Thus, federal law mandates that permits issued for MS4s require certain actions that will result in the elimination or reduction of pollutants to receiving waters and the state is required, by federal law, to select the controls necessary to meet this standard. (See <i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308; <i>City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region</i> (2006) 135 Cal.App.4th 1377, 1389-90.)</p> <p>The requirement that the Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. It does not require mitigation beyond redevelopment project impacts because the requirement lessens (although does not eliminate) the perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion) absent improved controls of post-project runoff flow rates and durations. The San Diego Water Board maintains that the Copermittees have authority to implement this</p>

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Lgl-2	LEGAL
	<p>requirement, and that if implemented it would not rise to the level of a taking of private property. The pre-development condition provision is also consistent with the requirements in both the current Orange County and Riverside County MS4 permits. Please see response to comment E3c2-2.</p> <p>However, to remove the question of the nexus between a project's impact on an already hardened channel, the San Diego Water Board has included a hydromodification management exemption for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Please see response to comment E3c2-3.</p> <p>The hydromodification management requirements that may be imposed on projects with no hydromodification impacts has been modified, but in any case would not have violated CEQA because the mitigation requirement was not imposed as a result of a CEQA analysis.</p>

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Lgl-3	LEGAL	
	<p>COMMENT: <i>The Tentative Order must address water quality inconsistencies with the California Coastal Act and California Water Code.</i></p> <p>The South Laguna Civic Association submitted comments that asserts the Tentative Order is inconsistent with the California Coastal Act and the water reclamation requirements of the California Water Code. The commenter asserts that the Tentative Order must address the water quality inconsistencies.</p>	<p>Environmental Organizations South Laguna Civic Association</p>
	<p>RESPONSE: The Tentative Order is not issued pursuant to the requirements of the California Coastal Act. The Tentative Order is issued pursuant to and consistent with the requirements of the federal Clean Water Act, Code of Federal Regulations, and the California Water Code for discharges of non-storm water and discharges of pollutants in storm water from the Copermittees' MS4s to receiving waters.</p> <p>Compliance with the requirements of the Tentative Order should also allow the Copermittees to be in compliance with the requirements of the California Coastal Act. When and where applicable, however, the Copermittees may be required to comply with the California Coastal Act under other regulatory mechanisms. The Tentative Order is not required to implement the requirements of the California Coastal Act.</p> <p>The Tentative Order also is not the appropriate regulatory mechanism for implementing the water reclamation requirements of the California Water Code. The water reclamation requirements of the California Water Code are implemented by the San Diego Water Board under separate regulatory mechanisms.</p>	

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March 27, 2013

Lgl-4	LEGAL	
	<p>COMMENT: <i>San Diego Water Board has legal authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order.</i></p> <p>The County of San Diego and the County of San Diego Office of County Counsel each submitted comments that assert that the San Diego Water Board has the authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order. The comments from the County cite the MEP standard, <i>Defenders of Wildlife v. Browner</i>, and a November 2010 USEPA memorandum as providing the the basis for the legal authority. The City of Lake Forest submitted comments that also cited <i>Defenders of Wildlife v. Browner</i> as providing the the basis for the legal authority to not incorporate TMDLs into the Tentative Order. The comments from the County also assert that the scientific basis of the Beaches and Creeks Bacteria TMDLs is flawed, the requirements of the TMDLs are not achievable, and the costs to implement the requirements of the TMDLs are not worth the benefits that may be achieved. The County requested that the San Diego Water Board elect not to include the Beaches and Creeks Bacteria TMDLs in the Tentative Order and re-evaluate the TMDL.</p> <p>Clean Water Now submitted comments alluded to “recent legal renderings” that called into question the TMDL provisions included in the Tentative Order.</p> <p>Conversely, the USEPA submitted comments in support of the the San Diego Water Board’s approach for incorporating applicable TMDL requirements into the Tentative Order.</p>	<p>Copermittees City of Lake Forest County of San Diego County of San Diego Office of County Counsel</p> <p>Environmental Organizations Clean Water Now</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it has the legal authority to not incorporate the requirements of the Beaches and Creeks Bacteria TMDLs into the Tentative Order.</p> <p>Federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations do not provide the option or discretion to not incorporate these WQBELs into NPDES permits.</p> <p>The San Diego Water Board is required to adopt and implement TMDLs through the MS4 permit, where the Copermittees’ MS4 discharges are a source of the impairment. TMDLs are adopted by the San Diego Water Board pursuant to CWA section 303(d) and CWC sections 13240 and 13242. TMDL implementation programs consist of a description of the nature of actions that are necessary to achieve the WLAs (and LAs), a time schedule for the actions to be taken, and a description of the monitoring and reporting to be undertaken to</p>	

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Lgl-4	LEGAL
	<p>determine compliance with the WLAs. Because TMDLs and their programs of implementation are adopted through the Basin Plan amendment process in California, the TMDL implementation program contained in a regional water board's basin plan becomes a regulation upon approval by the State of California Office of Administrative Law. All permits must implement the applicable water quality control plan (i.e. Basin Plan), including any applicable TMDL implementation programs (CWA §§ 303(d), 402(p)(3)(B)(iii); Cal. Water Code §§ 13263, 13377). These Basin Plan provisions thus become the applicable regulations that authorize an MS4 permit to include compliance schedules to achieve effluent limitations derived from TMDL WLAs. It is unclear whether the commenters understand that the TMDL implementation programs are the basis for the compliance schedules and, without the TMDL implementation program, Copermittees would be required to comply with final WQBELs immediately.</p> <p>Further, USEPA has set forth guidance regarding MS4 permits, that such permits must require compliance with applicable TMDLs to meet water quality standards. (See "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) (for Storm Water Sources and NPDES Requirements Based on Those WLAs.'" (USEPA Office of Water, Nov. 10, 2010.) "<i>Where a TMDL has been established and there is an accompanying implementation plan that provides a schedule for an MS4 to implement the TMDL, the permitting authority [in this case, the Regional Water Board] should consider the schedule as it decides whether and how to establish enforceable interim requirements and interim dates in the permit.</i>" (Id.) The San Diego Water Board is aware that the USEPA memorandum is not legally binding, but finds it very instructive and it is appropriate to consider USEPA guidance, even if that guidance <i>may</i> be modified in some manner in the future.</p> <p>NPDES permits are intended to support the objective of the federal Clean Water Act "<i>to restore and maintain the chemical, physical, and biological integrity of the Nation's waters</i>" (Clean Water Act section 101(a)). Water quality standards, which are the basis for the receiving water limitations in the Tentative Order, are the foundation for achieving this objective. To ensure that discharges do not cause or contribute to exceedances of water quality standards, receiving water limitations provisions are included in all NPDES permits issued pursuant to CWA section 402. Further, Clean Water Act section 402(p)(3)(B)(iii) requires permits for discharges from municipal storm sewers to "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design, and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." [Emphasis added.] In its Phase I Stormwater Regulations, Final Rule, USEPA elaborated on these requirements, stating that, "permits for discharges from municipal separate storm sewer systems must require</p>

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Lgl-4	LEGAL
	<p>controls to reduce the discharge of pollutants to the maximum extent practicable, and where necessary, water quality-based controls.” (See 55 Fed. Reg. 47990, 47994 (Nov. 16, 1990).) USEPA reiterated in its Phase II Stormwater Regulations, Final Rule, that MS4 “permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL.”</p> <p>The Clean Water Act provides the San Diego Water Board, to the same extent as the Administrator of USEPA, the discretion to determine what controls are appropriate to protect water quality and achieve the objectives of the Clean Water Act. (See <i>Defenders of Wildlife v. Browner</i> (1999) 191 F.3d 1159, 1166.) As explained in the Tentative Order, compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards. The State Water Board and the San Diego Water Board have previously concluded that discharges from the MS4 contain pollutants that have the reasonable potential to cause or contribute to excursion above water quality standards. As such, receiving water limitations are included in the Tentative Order to ensure that individual and collective discharges from the MS4 do not cause or contribute to exceedances of water quality standards necessary to protect the beneficial uses of the receiving waters. Compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards.</p> <p>In recognition of the purpose of the NPDES program in supporting the objective of the Clean Water Act and utilizing its authority provided by CWA section 402(p)(3)(B)(iii), and considering USEPA’s statements and guidance, the State Water Board has determined that MS4 permits must include compliance with water quality standards. (See State Water Board Order Nos. WQ91-03, WQ 98-01, WQ 99-05 and WQ 2001-15.) Accordingly, the provisions contained in 40 CFR 122.44(d), are applicable to MS4 permits.</p> <p>The San Diego Water Board also disagrees that incorporation of TMDL requirements is based on state law provisions of the Porter Cologne Water Quality Control Act and that consideration of the factors under Water Code section 13241 is required before the requirements may be implemented. TMDLs implement existing water quality objectives that are designed to protect designated beneficial uses. Numeric targets used by TMDLs to implement water quality standards are not designed to re-balance the policy interests underlying those standards. While policy considerations are important in developing water quality standards in the first instance, they are less important in formulating TMDLs that implement them. The statutory directive to adopt TMDLs in the first instance is to “implement the applicable water quality standards with seasonal variations and a margin of safety.” (33 U.S.C. § 1313(c)(2)(A). See also 40 CFR §§ 131.10-13.) While consideration of economic</p>

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Lgl-4	LEGAL
	<p>factors may be appropriate in adopting TMDLs, a section 13241 economic analysis is not required either in the adoption of TMDLs or in the implementation through an NPDES permit.</p> <p>Additionally, the implementation plan included as part of the Beaches and Creeks Bacteria TMDLs requires the San Diego Water Board to incorporate the requirements of the TMDLs into the appropriate regulatory mechanisms to implement the TMDL requirements. If the requirements of the Beaches and Creeks Bacteria TMDLs are not incorporated into any regulatory mechanisms (e.g. NPDES permits), the TMDL requirements will not be implemented and will not be enforceable. Implementation of the TMDL requirements in regulatory mechanisms must be initiated as soon as possible to achieve the requirements of the TMDL within the compliance schedules of the TMDL.</p> <p>The San Diego Water Board is obligated to incorporate the requirements into the MS4 permit. Otherwise, the San Diego Water Board would be in conflict with its own implementation plan requirements within the Basin Plan as well as the requirements of the Code of Federal Regulations. Please also see response to comment Lgl-10.</p>

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Lgl-5	LEGAL	
	<p>COMMENT: <i>San Diego Water Board does not have the legal authority to issue a regional MS4 permit.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments asserting that the San Diego Water Board does not have the authority to issue a regional MS4 permit under the Clean Water Act. The Orange County Copermitees argue that while it geographically abuts San Diego County, there is extensive federal land separating MS4s within its county from other MS4s and the federal regulations to not allow the issuance of a regional MS4 permit without a “connection.” The commenters also raised concerns over the regulatory requirement to file a Report of Waste Discharge before obtaining coverage under the Tentative Order.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the federal regulations do not authorize the issuance of a region-wide MS4 permit coextensive with the jurisdictional boundaries of the San Diego Region.</p> <p>Despite the geographic separation, the San Diego Water Board has legal authority to issue a regional MS4 permitti through its authority in the Clean Water Act. (See Attachment No. 2, September 7, 2012 Letter from San Diego Water Board Counsel on Legal Authority Supporting Issuance of a Regional MS4 Permit) Section 402, subpart (p)(3)(B) of the Clean Water Act states that “Permits for discharges from municipal storm sewers – (i) may be issued on a system- or jurisdiction-wide basis” The federal storm water regulations in 40 CFR at Part 122.26, subdivision (a)(1)(v) also state that the Director (the San Diego Water Board) may designate dischargers from municipal separate storm sewers on a system-wide or jurisdiction-wide basis, taking into consideration the following factors: (A) location of the the discharge with respect to waters of the United States; (B) the size of the discharge; (C) the quantity and nature of the pollutants discharged to waters of the United States and (D) other relevant factors. Consideration of these factors provides wide discretion to the San Diego Water Board in issuing MS4 permits.</p> <p>More specifically, the regulations permit issuance of system-wide permits covering all MS4s in “adjacent . . . large or medium separate storm sewer systems.” (See 40 CFR sec. 122.26(a)(3)(iv). The regulations also support issuance of MS4 permits on watershed or “other basis” contemplating that such permits may “specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas” (40 CFR Part 122.26(a)(3)(v).)</p> <p>The USEPA responses to comments for the above regulations also make clear that the permitting authority, in this case, the San Diego Water Board, has flexibility to establish system- or region-wide permits. In the Final</p>	

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Lgl-5	LEGAL	
	<p>Rule published in the Federal Register and containing USEPA's responses to comments, USEPA notes that paragraph (iv) of section 122.26(a)(3) would allow an entire system in a geographical region under the purview of a state agency to be designated under a permit. (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed.Reg. 47990, 48030-48042 (Nov. 16, 1990).)</p> <p>It is important to note that a regional MS4 permit does not expand the requirements for each municipality beyond its borders as the federal regulations make clear that MS4 permittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators. (40 CFR Part 122.26(a)(3)(vi).) See also September 7, 2012, memorandum from Jessica Jahr and Catherine Hagan, State Water Board's Office of Chief Counsel, to Ryan Baron and David Huff, counsels for Orange and Riverside Counties, respectively which is incorporated into this response.</p> <p>The other objection commenters raise concerns the regulatory requirement to file a Report of Waste Discharge (ROWD). The Tentative Order does not cover or become effective for either the Orange County or Riverside County Copermittees until the earlier of (1) either or both Counties voluntarily seeks to be covered by the permit, once adopted, or (2) Orange or Riverside County timely submits its respective ROWD proposing changes or other recommendations to the Tentative Order and appropriate changes are made concurrent with permit coverage becoming effective as to one or each County. In other words, the obligation to submit a ROWD and for the San Diego Water Board to consider an ROWD has not been abandoned and the Tentative Order reflects that the San Diego Water Board will rely on the ROWD process to frame prospective revisions to the permit. And while neither county has yet filed its next ROWD, both have been provided with ample and extensive opportunities to participate fully in the development of this Tentative Order.</p>	

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Lgl-6	LEGAL	
	<p>COMMENT: <i>The requirements of the Tentative Order are more stringent than Federal law and require a CWC 13241 analysis.</i></p> <p>The Orange County and Riverside County Copermitees, City of Lake Forest, and the Building Industry Association of Southern California assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>	<p>Building Industry / Industry Building Industry Association of Southern California Copermitees City of Lake Forest Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that there are “many requirements in the Draft Permit which exceed the federal MEP standard.”</p> <p>The San Diego Water Board is charged with construction of and administration of the Clean Water Act in the San Diego Region. In issuing MS4 permits, “[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants.” (<i>City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region</i> (2006) 135 Cal.App.4th 1377,1389.) However, the “<i>Regional Board must comply with federal law requiring detailed conditions for NPDES permits.</i>” (<i>Ibid.</i>)</p> <p>Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (<i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See <i>City of Rancho Cucamonga, supra</i>, 135 Cal.App.4th at 1389; <i>Building Industry Association of San Diego County v. State Water Resources Control Bd.</i> (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (<i>Id.</i> at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).)</p> <p>Accordingly, a determination of whether the conditions contained in Tentative Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions with federal law. The appropriate focus is whether the permit conditions as a whole exceed the MEP standard. The commenters have failed to cite any evidence that demonstrates how requirements in the Tentative Order exceed the MEP</p>	

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Lgl-6	LEGAL
	<p>standard or applicable requirements of federal law.</p> <p>The commenters assert that provisions of the Tentative Order are more stringent than the requirements of the Clean Water Act and therefore require an analysis of the factors, including economic considerations, in Water Code section 13241 before the San Diego Water Board can approve such provisions. As indicated above, the San Diego Water Board disagrees that provisions of the Tentative Order are more stringent than requirements of the Clean Water Act. Because the Tentative Order is not more stringent than federal law, its adoption does not require the San Diego Water Board to consider Water Code section 13241 factors. The California Supreme Court in <i>City of Burbank v. State Water Resources Control Board, et al.</i>, ((2005) 35 Cal.4th 613) (<i>Burbank</i>), held: [Water Code s]ection 13377 specifies that wastewater discharge permits must meet the federal standards set by federal law. In effect, section 13377 forbids a regional board's consideration of any economic hardship on the part of the permit holder if doing so would result in the dilution of the requirements set by Congress in the Clean Water Act. That act prohibits the discharge of pollutants into the navigable waters of the United States unless there is compliance with federal law (33 U.S.C. § 1322(a)), and publicly operated wastewater treatment plants such as those before us here must comply with the act's clean water standards, regardless of cost [citations]. Because [Water Code] section 13263 cannot authorize what federal law forbids, it cannot authorize a regional board, when issuing a wastewater discharge permit, to use compliance costs to justify pollutant restrictions that do not comply with federal clean water standards." (<i>Burbank</i>, 35 Cal.4th at 625.)</p> <p>While the <i>Burbank</i> decision does require an analysis of Water Code section 13241 factors when the state adopts permit conditions that are more stringent than federal law (<i>id.</i> at 618) the Tentative Order reflects that all of the challenged provisions are necessary to implement federal law. Thus, the San Diego Water Board is not required to consider economic information to justify a "dilution of the requirements" established in federal law. Even when applicable, consideration of economic information pursuant to section 13241 does not require a cost-benefit analysis, as some commenters suggest. And section 13241 neither specifies how regional water boards must consider its enumerated factors nor does it require that regional water boards may specific findings documenting consideration of the factors. (See <i>California Ass'n of Sanitation Agencies, et al. v. State Water Resources Control Board, et al.</i>, (208 Cal.App.4th 1438, 1464 (2012).) Nonetheless, the Fact Sheet and Response to Comments reflect economic information that has either been developed or gathered by the San Diego Water Board or has been submitted by Copermitttees or others as part of this proceeding. To the extent that economic information in connection with compliance and other costs associated with challenged permit provisions, the San Diego Water Board has fully considered this information. Under these circumstances, <i>Burbank</i> does not require more.</p>

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Lgl-7	LEGAL	
	<p>COMMENT: <i>The San Diego Water Board cannot determine whether a particular mandate is unfunded.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board does not dispute that the Commission on State Mandate ultimately has jurisdiction to determine whether the State has imposed a mandate requiring state subvention. However, it is entirely appropriate for the San Diego Water Board to set forth its legal basis to support the provisions in the Tentative Order, finding them to be necessary and appropriate to meet the federal Clean Water Act standards.</p> <p>While the Commission may be expert in state mandates, it has no expertise in the field of water law. As indicated in response to comment Lgl-6, above, the San Diego Water Board does not agree that provisions in the Tentative Order exceed federal requirements of the Clean Water Act. The San Diego Water Board is charged by law with administering and constructing the Clean Water Act's requirements and is entitled to considerable deference in its interpretation of the Act. (See <i>Buidling Industry Ass'n of San Diego, supra</i>, 124 Cal.App.5th at pp. 873, 879 fn.9; <i>County of Los Angeles v. California State Water Resources Control Bd.</i> (2006) 143 Cal.App.4th 985, 997.) In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (<i>City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region</i> (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (<i>Ibid.</i>) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (<i>NRDC v. USEPA</i> (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See <i>City of Rancho Cucamonga, supra</i>, 135 Cal.App.4th at 1389; <i>Building Industry Association of San Diego County v. State Water Resources Control Bd.</i> (2004) 124 Cal.App.4th 866, 882-883.)</p> <p>Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (<i>Id.</i> at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) The San Diego Water Board's findings are the</p>	

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Lgl-7	LEGAL
	<p>expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Cal. Wat. Code §§ 13001, 13370.) The San Diego Water Board is not precluded from including provisions in the Tentative Order which commenters may contend are state mandates and it is well within the San Diego Water Board's authority to conclude, based on its expertise in administering the Clean Water Act, the the Tentative Order does not exceed federal law and is therefore not a state mandate subject to subvention.</p>

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Lgl-8	LEGAL	
	<p>COMMENT: <i>"Waters of the state" should be revised to "waters of the U.S" or "receiving waters" throughout the Tentative Order.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments objecting to applying the requirements of the Tentative Order to "waters of the state" instead of "waters of the U.S." which is consistent with the Clean Water Act, or "receiving waters." The Copermittees are concerned that "waters of the state" may include groundwater, which exceeds federal requirements. The Copermittees requested several revisions throughout the Tentative Order reflecting this comment.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that certain requirements of the Tentative Order should be revised to "waters of the U.S." or "receiving waters."</p> <p>Where applicable and appropriate, the San Diego Water Board revised "waters of the state" to "waters of the U.S." or "receiving waters" to limit the application of a requirement to surface waters. However, because the Tentative Order also serves as waste discharge requirements and incorporates the water quality standards of the Basin Plan (i.e. discharge prohibition A.1.a), the term "waters of the state" remains appropriate where the phrase exists in the applicable Basin Plan provision, incorporated into the Tentative Order. Because the Tentative Order regulates discharges of pollutants to waters of the United States, the San Diego Water Board does not anticipate there being any MS4 discharges to groundwaters that could violate the prohibition as to waters of the state. Additionally, such provisions are not new to San Diego Region MS4 permits.</p>	

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Lgl-9	LEGAL	
	<p>COMMENT: <i>The Tentative Order cannot include requirements to regulate storm water flow.</i></p> <p>The Riverside County and San Diego County Copermittees, the City of Lake Forest, and the BIA Regulated Community Coalition each submitted comments that assert the Tentative Order cannot include requirements (i.e. hydromodification management requirements) to regulate storm water flow. The commenters cite a recent court decision from Virginia (<i>Virginia Dept. of Transp. v. U.S. Environmental Protection Agency</i>) as the basis for this assertion.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requests that the Tentative Order finds discharges (i.e. flow) from the MS4s can generate and/or contribute to discharges of pollutants downstream of the MS4 outfalls (e.g. discharge of sediment due to scouring of the natural channels).</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Lake Forest Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order cannot include requirements that will result in decreasing the impact of pollutants in storm water runoff discharged from the MS4s on the physical, chemical, and biological integrity of receiving waters to the maximum extent practicable (MEP).</p> <p>The Tentative Order includes requirements to effectively prohibit non-storm water discharges to the MS4, and control the discharge of pollutants from the MS4 to the MEP, consistent with the requirements of the Clean Water Act and Code of Federal Regulations. If non-storm water discharges are effectively prohibited to the MS4s, there should be little to no flow from the MS4s to receiving waters. Thus, the Tentative Order already includes requirements to regulate non-storm water flow to and from the MS4s.</p> <p>In contrast, the MEP standard is a technologically based effluent limitation (TBEL) that applies specifically to storm water discharges from the MS4s. The Tentative Order includes development planning structural BMP requirements that act as BMP-based TBELs to implement the MEP standard for new development and significant redevelopment projects. While the development planning structural BMP requirements are separated into “<i>storm water pollutant control</i>” and “<i>hydromodification management</i>” BMP requirements, they are both for the control of pollutants in storm water discharges from the MS4 to the MEP.</p> <p>The hydromodification management BMP requirements of the Tentative Order do, to a significant extent, regulate flow. However, the primary purpose of the hydromodification management BMP requirements still stems from the requirement that MS4 permits include controls to reduce the discharge of pollutants in storm water from the MS4s to receiving waters. The increases in flows and durations caused by new development</p>	

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Lgl-9	LEGAL
	<p>and significant redevelopment also results in increases to pollutants that are discharged in storm water from the MS4s to the receiving waters. The pollutants discharged will always be in excess of what would be generated in a natural environment, even with controls in place.</p> <p>Those increased pollutant loads associated with increased flows and durations of storm water discharging from the MS4s impact the chemical integrity (e.g. salinity, temperature, toxic pollutants), biological integrity (e.g. biological toxicity, supportable flora and fauna, habitat alteration), and physical integrity (e.g. destabilization of stream channels, excessive sediment deposition) of receiving waters. Thus, the hydromodification management BMP requirements of the Tentative Order are necessary to control the discharge of pollutants generated by new development and significant redevelopment projects in storm water discharges from the MS4 to the MEP, even if they do result in the regulation of flow.</p> <p>The recent district court decision from the Eastern District of Virginia (<i>Virginia Dept. of Transportation, et al. v. United States Environmental Protection Agency, et al.</i> (2013 WL 53741 (E.D.Va.) (Virginia Decision)) cited by commenters does not support their argument in the context of the Tentative Order. In the Virginia Decision, USEPA had established a TMDL limiting the flow rate of stormwater into a creek to 681.8 ft/acre-day. USEPA characterized the flow rate as a “surrogate” for sediment, a pollutant. USEPA recognized that flow in and of itself is not a pollutant.</p> <p>As some commenters acknowledge, the Virginia Decision is not precedential and does not bind the San Diego Water Board. More importantly, the decision is inapposite as it concerns section 303(d) of the Clean Water Act concerning total daily maximum loads (TMDLs) which sets forth a very specific requirement that for impaired water bodies, states must establish numeric loads “for those <i>pollutants</i> which the Administrator identifies under section 1314(a)(2) of this title are suitable for such calculation.” Instead of setting a load for a pollutant, USEPA calculated a load for flow as a surrogate for the relevant pollutant.</p> <p>In contrast, as explained above, section 402(p) of the Clean Water Act provides that states issuing MS4 permits shall “require <i>controls</i> to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (CWA, § 402(p)(3)(B)(iii).) Following the directives of this section of the Clean Water Act, the Tentative Order establishes controls discussed above such as best management practices to remove pollutants in storm water, source control and restrictions on the flow rate and duration of post-construction runoff, the latter of which not only can</p>

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Lgl-9	LEGAL
	<p>contain pollutants but can affect the discharge of pollutants in the runoff. (See State Water Board Order No. WQ 2000-11 (p. 5) (<i>Cities of Bellflower, et al.</i>), and State Water Board Order WQ 2001-15 (fn.23) (<i>Building Industry Association of San Diego</i>)).</p> <p>One commenter also cites to the Virginia Decision in requesting that the San Diego Water Board conform the TMDL provisions in the Tentative Order to the Virginia Decision. It is unclear how the commenter believes the Virginia Decision applies to the TMDL provisions in the Tentative Order, but as indicated above, the decision is not binding on the San Diego Water Board and any concerns with the loads established in TMDLs should most appropriately be raised in the context of the TMDL approval proceeding.</p>

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Lgl-10	LEGAL	
	<p>COMMENT: <i>The numeric WQBELs violate requirements of law because they are infeasible.</i></p> <p>The Orange County Copermitees submitted comments that object to the incorporation of numeric WQBELs for TMDLs, and assert that the inclusion of the numeric WQBELs violate the law because they are infeasible (presumably, to achieve). The Copermitees assert that the WQBELs should be BMP-based and not numeric. The Copermitees cite a 2010 USEPA memorandum, 40 CFR 122.44(k), and the Caltrans MS4 permit as justification for BMP-based instead of numeric WQBELs in the Tentative Order.</p>	<p>Copermitees Orange County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that including numeric WQBELs for the TMDLs in the Tentative Order violate the requirements of law.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations under 40 CFR 122.44(k) do not require WQBELs to be BMP-based if numeric effluent limitations are infeasible, but only that WQBELs that implement WLAs <u>may</u> be expressed in the form of BMPs. BMP-based WQBELs may be allowed if BMPs alone adequately implement WLAs, and additional controls are not necessary. This is consistent with a 2002 USEPA memorandum for “<i>Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.</i>” WQBELs are required for point source discharges that have the reasonable potential to cause or contribute to an excursion of water quality standards and technology based effluent limitations or standards are not sufficient to achieve water quality standards. Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards.</p> <p>The 2010 USEPA memorandum for “<i>Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.’</i>” cited by the Copermitees states, “<i>For the purpose of this memorandum, numeric WQBELs use numeric parameters such as pollutant concentrations, pollutant loads, or numeric parameters acting as surrogates for pollutants [...].</i>” The memorandum goes on to recommend, “<i>Where the NPDES authority determine that MS4 discharges have a reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations necessary to meet water quality standards.</i>” The “where feasible” in the memorandum applies to the NPDES permitting authority’s discretion to include numeric effluent</p>	

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Lgl-10	LEGAL
	<p>limitations necessary to meet water quality standards, not to the feasibility of achieving the numeric effluent limitations. The State Water Board, in Order WQ 2006-0012 (Boeing), has made clear that “infeasibility” in the context of numeric effluent limitations refers to “the ability or propriety of establishing” numeric limits, as opposed to the feasibility of compliance. Please also see response to comment Lgl-4.</p> <p>The Caltrans MS4 permit is issued by the State Water Board. Even though the Caltrans MS4 permit may allow for BMP-based WQBELs, this does not require the San Diego Water Board to include BMP-based WQBELs in the Tentative Order regardless of any potential or apparent conflict. The San Diego Water Board will issue additional requirements to Caltrans with numeric WQBELs when and where warranted.</p> <p>The San Diego Water Board considered the feasibility of incorporating numeric WQBELs to implement the requirements of each of the TMDLs and has determined that they are feasible, and necessary, to include to meet water quality standards, consistent with the 2010 USEPA memorandum. Numeric WQBELs are also “additional controls” necessary to implement the WLAs, consistent with the 2002 USEPA memorandum.</p> <p>Each of the TMDLs in the Tentative Order, however, includes BMP-based WQBELs which must be implemented to achieve the numeric WQBELs. The Tentative Order requires the Copermittees to implement the BMP-based WQBELs to achieve the numeric WQBELs. This is consistent with the 40 CFR 122.44(d)(1)(vii)(B) and 40 CFR 122.44(k), and the recommendations of the 2010 USEPA memorandum. The Tentative Order has also been revised to include interim and final TMDL compliance determination options that allow the Copermittees to demonstrate that the BMP-based WQBELs will achieve the numeric WQBELs. The numeric WQBELs are necessary for the Copermittees to quantitatively demonstrate that the BMPs implemented are achieving the WLAs of the TMDLs. Please see response to comments AttE-1 and AttE-3.</p> <p>Thus, the Tentative Order appropriately includes numeric WQBELs and does not violate any requirements of law.</p>

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Lgl-11	LEGAL	
	<p>COMMENT: <i>Storm water pollutant control retention requirements of the Tentative Order conflict with Rainwater Capture Act of 2012 (AB 1750).</i></p> <p>The BIA Regulated Community Coalition commented that the Rainwater Capture Act does not provide the authority to collect and retain storm water from impervious surfaces other than rooftops. Thus, the BIA Regulated Community Coalition asserts that the storm water pollutant control retention requirements of the Tentative Order may be in conflict with the Rainwater Capture Act and the retention requirements of the Tentative Order should not be enforced.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the storm water pollutant control retention requirements of the Tentative Order are in conflict with the Rainwater Capture Act.</p> <p>The Rainwater Capture Act provides additional clarification that the collection of rainwater from rooftops does not require a water right permit. The Rainwater Capture Act does not address collection of water from other surfaces, nor does it modify or alter existing law pertaining to appropriative water rights. Retention of rainwater or diffuse surface flow before it flows into a watercourse does not require a water right permit. The storm water pollutant control retention requirements of the Tentative Order are not in conflict with the Rainwater Capture Act or existing water rights law.</p>	

FINDINGS

Fnd-1: Requests for additional findings.

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Fnd-1	FINDINGS	
	<p>COMMENT: <i>Requests for additional findings.</i></p> <p>The Riverside County Copermittees requested several additional findings be included in the Tentative Order associated with water law, flooding, flood control acts, and limitations on legal authority. The County of San Diego and the County of San Diego Department of Environmental Health requested a finding with vector-related language.</p>	<p>Copermittees County of San Diego County of San Diego Department of Environmental Health Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board considered the requests for the additional findings and determined that including the additional findings is not necessary.</p> <p>The requirements of the Tentative Order are consistent with the federal Clean Water Act, Code of Federal Regulations, and the California Water Code. The additional findings requested associated with water law, flooding, flood control acts, limitations on legal authority and vector-related issues are not necessary to establish that the requirements of the Tentative Order are consistent the federal Clean Water Act, Code of Federal Regulations, and the California Water Code.</p> <p>The San Diego Water Board did not include any additional findings as requested by the commenters. The San Diego Water Board did, however, incorporate an additional requirement under the general requirements of all development projects (new Provision E.3.a.(1)(c)) to avoid the creation of nuisance or pollution associated with vectors. Subsequently, additional discussion was also included in the Fact Sheet to encourage the design and implementation of BMPs in consultation with local vector control agencies and the California Department of Public Health.</p>	

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Fnd-2	FINDINGS	
	<p>COMMENT: <i>Findings 2 and 26: Remove language that states the San Diego Water Board has the authority to issue a regional MS4 permit.</i></p> <p>The Orange County and Riverside County Copermittees each submitted comments asserting that Findings 2 and 26 were inaccurate and the San Diego Water Board does not have the authority to issues a regional MS4 permit under the Clean Water Act.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it does not have the authority to issue a regional MS4 permit.</p> <p>The San Diego Water Board maintains Findings 2 and 26 are accurate and the San Diego Water Board has the authority to issue a regional MS4 permit. Please see the response to comment Lgl-5.</p>	

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Fnd-3	FINDINGS	
	<p>COMMENT: <i>Finding 3 and 15 (and elsewhere in the Tentative Order): Remove "in storm water" from "reduce discharges of pollutants in storm water to the maximum extent practicable."</i></p> <p>The Riverside County and San Diego County Copermitees each submitted comments that objected to requiring the control of pollutants "in storm water" to the MEP. The Copermitees assert that the Tentative Order is inconsistent with the Clean Water Act and the control of pollutants to the MEP applies to both storm water and non-storm water.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Findings 3 and 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that there is any inconsistency with the requirements of the Clean Water Act, or that the adoption of the Tentative Order should be delayed.</p> <p>Comments received assert that the "plain language" of the Clean Water Act states that the MEP standard applies to all pollutants discharged from the MS4, not just pollutants in storm water. The commenter, however, fails to acknowledge the "plain language" of the Clean Water Act that specifically makes a clear distinction that non-storm water discharges are to be effectively prohibited from entering the MS4.</p> <p>Since the "plain language" of the Clean Water Act states that non-storm water discharges to the MS4 are to be effectively prohibited (CWA section 402(p)(3)(B)(ii)), then no pollutants in non-storm water will enter the MS4 if the discharger is in compliance with this requirement. If no pollutants are entering the MS4 because non-storm water discharges are not entering the MS4, then clearly the very next requirement to control pollutant discharges from the MS4 be reduced to the MEP (CWA section 402(p)(3)(B)(iii)) intends that the discharge of pollutants only apply to storm water.</p> <p>Provisions A.1.b and A.3.a are consistent with CWA section 402(p)(3)(B)(ii) and CWA section 402(p)(3)(B)(iii), respectively, and the Fact Sheet further clarifies this distinction between non-storm water discharges and pollutants in storm water discharges. Findings 3 and 15 are consistent with the Clean Water Act have not be modified. The United States Supreme Court decision, <i>Los Angeles County Flood Control v. Natural Resources Defense Council</i> (2013) 133 S.Ct. 710 does not require any modifications to the Tentative Order.</p>	

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Fnd-4	FINDINGS	
	<p>COMMENT: <i>Finding 7: Finding should be modified to support construction of BMPs in receiving waters.</i></p> <p>The BIA Regulated Community Coalition submitted comments requesting revisions to Finding 7 to support the construction of BMPs in receiving waters. The commenter is concerned that the Tentative Order will not allow the construction of BMPs, or implementation of retrofitting or rehabilitation projects in waters of the U.S. or waters of the state to treat pollutants in storm water from areas of existing development. The commenter also requested a revision to Provision E.3.a.(1)(b) to reflect the requested revision to Finding 7.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees revisions to Finding 7 are appropriate or necessary.</p> <p>Finding 7 correctly provides that pursuant to federal regulations under 40 CFR 131.10(a) waste transport or waste assimilation cannot be a designated use for any waters of the U.S. Thus, waters of the U.S. cannot be utilized for the treatment of pollutants in storm water discharges from the MS4s, and treatment control BMPs must not be constructed in waters of the U.S. to treat pollutants in storm water discharges from the MS4s.</p> <p>Finding 7 does not, however, include construction of BMPs for the treatment of pollutants in waters of the state. Thus, the San Diego Water Board has revised Provision E.3.a.(1)(b) to limit the prohibition of constructing structural BMPs in only waters of the U.S. consistent with 40 CFR 131.10(a).</p>	

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Fnd-5 FINDINGS	
	<p>COMMENT: <i>Findings 8, 16 and 17: Findings should not include presumption that discharges from MS4s always contain waste or pollutants.</i></p> <p>The Orange County and San Diego County Copermittees objected to Finding 8 stating that discharges from the MS4s contain waste, and does not acknowledge that there may not be pollutants in the discharges from the MS4s. The Copermittees requested revisions to Findings 8, 16 and 17 to reflect this position.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 8. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation recommended that Finding 8 should also acknowledge pollutant discharges that are caused as a result of discharges from the MS4s (e.g. sediment discharged due to scouring of the receiving waters).</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees that Findings 8, 16, or 17 are inaccurate, or that the adoption of the Tentative Order should be delayed.</p> <p>The Tentative Order is implementing the requirements of the California Water Code as well as the requirements of the Clean Water Act. Under the California Water Code section 13376, any person discharging waste, or proposing to discharge wastes to waters of the state is not authorized to discharge waste unless issued waste discharge requirements. The requirements of the Clean Water Act, specific to discharges of pollutants to waters of the U.S. are also included in the California Water Code, Chapter 5.5 of Division 7. Thus, under the California Water Code, any person discharging pollutants, or proposing to discharge pollutants to waters of the U.S. is not authorized to discharge pollutants unless issued waste discharge requirements that include NPDES requirements. Waste discharge requirements that include NPDES requirements is also an NPDES permit under the Clean Water Act. The Clean Water Act requires municipalities to obtain NPDES permits to authorize discharges of pollutants from their MS4s.</p> <p>Commenters cite the definition of “waste” in the California Water Code to assert that the definition does not include storm water or any discharge that is not created by human activity. Comments received also assert that</p>

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Fnd-5	FINDINGS
	<p>waste discharge requirements and NPDES permits cannot regulate the discharge of “pure storm water” and that not all discharges from the MS4 contain pollutants.</p> <p>Discharges from the MS4 are not “pure storm water.” Storm water that flows over the surface of any developed area, which includes the MS4 itself, do not enter or discharge from the MS4 without coming into contact with pollutants or constituents that alter the storm water such that it is no longer “pure storm water.” Thus, storm water discharges from the MS4 contains pollutants and contain waste. It is well-known and documented that urban runoff and storm water contains pollutants. (See, e.g., State Water Board Order WQ 2001-015 (“As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit (citation). It is also undisputed that urban runoff contains ‘waste’ within the meaning of Water code section 13050(d), and that the federal regulations define ‘discharge of a pollutant’ to include ‘additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man.’ (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of ‘waste’ and ‘pollutant.’ And not the runoff itself. [fn]. (p. 5.))</p> <p>The Tentative Order is not regulating “pure storm water” but the discharge of storm water that is being discharged as a waste and contains pollutants. Finding 8 accurately states that discharges from the MS4s contain waste, as defined in the California Water Code. Finding 8 also accurately states that discharges from the MS4s contain pollutants that adversely affect the quality of waters of the state. Findings 16 and 17 also accurately conclude that BMPs and implementation of BMPs are necessary to remove waste and pollutants in storm water discharges from the MS4s.</p> <p>The San Diego Water Board does not understand the comments concerning the recent United States Supreme Court decision in Los Angeles County Flood Control District v. NRDC (133 S.Ct 710 (2013)). The San Diego Water Board has reviewed the opinion and does not believe the opinion necessitates any changes to the Tentative Order.</p>

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Fnd-6 FINDINGS	
	<p>COMMENT: <i>Finding 10: Finding should be modified to specify linear underground projects (LUPs) should not be subject to permanent post construction BMP requirements.</i></p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 10 to specify that linear underground/overhead (utility) projects (LUPs) are not subject to post construction requirements to be consistent with the State Water Board Construction General Permit findings.</p>
	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revisions to Finding 10 are appropriate or necessary.</p> <p>Finding 10 accurately states that pollutants are generated by land development. Finding 10 discusses the generation of pollutants by land development in broad and general terms, and does not specify types of land development activities. Incorporating language into Finding 10 specific to LUPs is inappropriate and not necessary.</p>

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Fnd-7 FINDINGS	
<p>COMMENT: <i>Finding 11: Finding should not classify natural waters as part of the MS4, and cannot be classified as both an MS4 and receiving water.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments asserting that Finding 11 was inaccurate and the San Diego Water Board cannot classify natural waters as part of the MS4.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 11. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation recommended that the language of Finding 11 should be maintained.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now Los Penasquitos Lagoon Foundation</p>
<p>RESPONSE: The San Diego Water Board disagrees that Finding 11 is inaccurate, or that the adoption of the Tentative Order should be delayed.</p> <p>An MS4 is defined in the federal regulations as a conveyance or system of conveyances owned or operated by a Copermittee, and designed or used for collecting or conveying runoff. Therefore, the San Diego Water Board considers natural drainages that are used by the Copermittees as conveyances of runoff, as both part of the MS4 and as receiving waters.</p> <p>The State Water Board supports this approach. In reviewing a Petition on Order No. R9-2001-0001, the State Water Board stated "<i>We also agree with the Regional Water Board's concern, as stated in its response, that there may be instances where MS4s use 'waters of the United States as part of their sewer system [...]</i>" State Water Resources Control Board Order WQ 2001-15.</p> <p>Furthermore, the U.S. Supreme Court's 2006 <i>Rapanos</i> decision supports the conclusion that natural streams in developed areas can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under Clean Water Act section 404 and also be considered point sources of pollution discharges regulated under Clean Water Act section 402. (See <i>Rapanos, et al. v. United</i></p>	

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Fnd-7	FINDINGS
	<p><i>States and Carabell et al. v. United States Army Corps of Engineers, et al.</i> (2006) 547 U.S. 715, 743-744.)</p> <p>Finding 11 is accurate and consistent with the Clean Water Act and NPDES regulations.</p>

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Fnd-8	FINDINGS
	<p>COMMENT: <i>Finding 12: Finding should not state that Copermitees provide free and open access to MS4s; Copermitees are not responsible for all discharges not prohibited.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments objecting to Finding 12 stating that the Copermitees provide free and open access to MS4s. The Riverside County Copermitees also objected to Finding 12 stating that the Copermitees cannot passively receive and discharge pollutants from third parties. The Copermitees assert that they are not responsible for discharges from their MS4s that are from third parties that are subject to the jurisdiction of the San Diego Water Board.</p>
	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that Finding 12 is inaccurate.</p> <p>The Copermitees have the option to request the authority to discharge from their MS4s under an NPDES permit or comply with the complete prohibition against the discharge of pollutants pursuant to Clean Water Act section 301(a) (33 U.S.C. § 1311(a)). These choices are provided by the federal Clean Water Act, not state laws.</p> <p>The Copermitees have opted to discharge from their MS4s under an NPDES permit. In doing so, they are responsible for discharges from the MS4s. Thus, Finding 12 correctly provides that the Copermitees provide free and open access to their MS4s and they are responsible for discharges into the MS4 that they do not prohibit or otherwise control. Finding 12 also correctly provides that the Copermitees cannot passively receive and discharge pollutants from third parties.</p> <p>The Copermitees have the responsibility of identifying the sources of discharges and pollutants from their MS4s. If the Copermitees are not actively identifying sources and cannot identify sources of discharges and pollutants to and from their MS4s, then the Copermitees are the source of the MS4s discharges and pollutants to receiving waters, even if they believe third parties are responsible for the discharges and pollutants.</p> <p>If, however, the Copermitees identify the sources of discharges and pollutants to or from the MS4s as outside of their legal authority to prohibit or otherwise control, then they are not passively receiving and discharging pollutants, even if they are providing free and open access to the MS4s. The data and information that the Copermitees collect to identify the third party sources can provide the evidence that the Copermitees are not responsible for the discharges and pollutants from the MS4s that can be attributed to third parties. Until the data and information are provided to identify those third parties, and demonstrate those parties are not subject to the Copermitees' legal authority, then the Copermitees are responsible for all of the discharges to and from their MS4s unless such discharges are authorized by a separate NPDES permit.</p>

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Fnd-9	FINDINGS	
	<p>COMMENT: <i>Finding 15: Finding should state that the maximum extent practicable standard applies to both non-storm water and storm water, not just storm water.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments that assert Finding 15 is inaccurate. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the MEP standard applies to both non-storm and water storm water, not just storm water.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 15 to clarify that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. The San Diego Water Board also disagrees that Finding 15 should be revised.</p> <p>Finding 15 accurately states the requirements of the Clean Water Act. The San Diego Water Board maintains that MEP standard only applies to pollutants in storm water. The San Diego Water Board also maintains that Finding 15 does not need to be clarified to state that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s. Please see the responses to comments Fnd-3 and Fnd-8, and also see Memorandum from San Diego Water Board Counsel to San Diego Water Board dated 5 November 2009, incorporated by reference herein.</p>	

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Fnd-10	FINDINGS	
	<p>COMMENT: <i>Finding 27: Finding should state that implementation of the requirements of the Tentative Order "will" not "may" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report.</i></p> <p>The San Diego County Copermittees requested that Finding 27 be revised to state that the requirements of the Tentative Order "will" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report, as opposed to only "may" allow the re-categorization.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revising Finding 27 is appropriate.</p> <p>Finding 27 is accurate to state that the implementation of the Water Quality Improvement Plan "may" allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. The Integrated Report is ultimately approved by the USEPA. The USEPA may not allow the San Diego Water Board to re-categorize an impaired water body from Category 5 (i.e. TMDL required) to Category 4 (i.e. TMDL not required) if they do not agree that the implementation of the requirements of the Tentative Order will result in attainment of the water quality standards.</p>	

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Fnd-11	FINDINGS	
	<p>COMMENT: <i>Finding 28: Finding should state that the requirements of the Tentative Order are more stringent than Federal law and require a CWC 13241 analysis.</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments objecting to Finding 28. The Copermitees assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The Copermitees make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet. The Copermitees assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 28. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Orange County Copermitees Riverside County Copermitees</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that provisions of the Tentative Order go beyond the requirements of the Clean Water Act or Code of Federal Regulations, or that the adoption of the Tentative Order should be delayed.</p> <p>The San Diego Water Board considered economic information in developing the Tentative Order using the best available information, but did not do so in accordance with an analysis pursuant to California Water code section 13241. The provisions of the Tentative Order are based on and fully supported by federal requirements, as demonstrated by the legal authority provided by the Clean Water Act and Code of Federal Regulations sections cited in the Fact Sheet. Thus, the San Diego Water Board maintains that an analysis pursuant to California Water code section 13241 is not required. Federal NPDES regulations do not require that the San Diego Water Board conduct a cost-benefit analysis.</p> <p>Please also see response to comment Lgl-6.</p>	

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Fnd-12 FINDINGS	
	<p>COMMENT: <i>Finding 29: San Diego Water Board cannot determine what is a state mandate.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments objecting to Finding 29 generally asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination. The County of San Diego also submitted a similar comment.</p>
	<p>Copermittees County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Commission on State Mandates ultimately has jurisdiction to determine that a provision in the Tentative Order constitutes a state mandate.</p> <p>Finding 29 is, nonetheless, appropriate and necessary to express and support the San Diego Water Board's position that the Tentative Order is the result of a federal and not a state mandate. Please see the response to comment Lgl-7.</p>

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Fnd-13 FINDINGS	
	<p>COMMENT: <i>Finding 31: Finding should support implementation of the iterative process to comply with prohibitions and limitations.</i></p> <p>The Riverside County Copermittees submitted a comment related to Finding 31 requesting that the Tentative Order be revised to support the iterative process as a means to comply with the discharge prohibitions and receiving water limitations of Provision A. The Copermittees did not request or recommend any revisions to Finding 31, but requested revisions to Provision A to support implementation of the iterative process to comply with the discharge prohibitions and receiving water limitations.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that implementation of the iterative process is necessary to achieve compliance with the discharge prohibitions and receiving water limitations of Provision A.</p> <p>The San Diego Water Board did not make any revisions to Finding 31 or Provision A as requested by the commenter. The San Diego Water Board did, however, include an option as part of the Water Quality Improvement Plan requirements that each Copermittee may choose to implement to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A. Please see response to comment A-1.</p>

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Fnd-14 FINDINGS	
	<p>COMMENT: <i>Finding 32: Finding should clarify that NPDES permitted discharges to MS4s that discharge to ASBS are authorized.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Finding 32 to specify that the San Diego Water Board finds that NPDES-permitted discharges to the MS4 that subsequently discharge to ASBS will not alter ocean water quality and the Tentative Order authorizes these NPDES-permitted discharges. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees' MS4s that then discharge to ASBS are authorized.</p> <p>The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 32. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Environmental Organizations Clean Water Now</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revisions to Finding 32 are appropriate or necessary, or that the adoption of the Tentative Order should be delayed.</p> <p>The Tentative Order requires discharges from the Copermittees' MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). The Tentative Order includes provisions that apply to the Copermittees' MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. Incorporating the requested language into Finding 32 to find that the San Diego Water Board authorizes discharges of other NPDES-permitted discharges to the MS4 is inappropriate and not necessary.</p>

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS		
	<p>COMMENT: <i>Revise Provision A to clarify how compliance with prohibitions and limitations can be achieved.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of Provision A be modified to provide a clear linkage between the prohibitions and limitations of Provisions A.1 to A.3 with the iterative process required under Provision A.4 to be demonstrated through the implementation of the Water Quality Improvement Plans. The Copermittees are concerned that the language of Provision A, if not modified, will be interpreted as requiring strict and immediate compliance with the prohibitions and limitations, and the implementation of the iterative process would not be enough the demonstrate compliance with the prohibitions and limitations. Among the many recommended modifications to the requirements of Provision A, the Copermittees are generally requesting that the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a specifically state that implementation of Provision A.4 constitutes compliance. Furthermore, the Copermittees have requested that Provision A.4 explicitly state that the implementation of the iterative process constitutes compliance with any of the prohibitions and limitations under Provision A.1 to A.3, including compliance with the effective prohibitions of non-storm water discharges to the MS4s, the special protections for ASBS, and the TMDL requirements.</p> <p>Many Copermittees submitted separate comments in support of the requested modifications. One commenter from the Building Industry also requested similar modifications to the requirements of Provision A.</p> <p>In contrast, commenters from Environmental Organizations were strongly in support of maintaining the existing language and asserted that modifications to Provision A that would “weaken” the requirements, or provide “safe harbor” and would violate federal anti-backsliding requirements.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Diego City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District / Brown and Winters</p> <p>Environmental Organizations Environmental Groups Natural Resources Defense Council</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and their supporters, as well as the Environmental Organizations.</p> <p>The San Diego Water Board understands the concerns that the Copermittees have expressed regarding the requirements of Provision A and the apparent lack of a linkage between the iterative process under Provision A.4 and the strict compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. This language, however, is consistent with the precedential language that was issued under State Water Board Order WQ-1999-05 and has been implemented in all MS4 permits issued by the San Diego Water Board since 2001. The State Water Board has not issued an order or taken other action to supersede the</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	<p>precedential language.</p> <p>Under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives. The discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c and A.2.a are consistent with this requirement, and are included in all NPDES permits and Waste Discharge Requirements issued by the San Diego Water Board. These are the fundamental requirements that protect water quality by ensuring that discharges comply with applicable water quality standards to ensure protection of receiving water beneficial uses. The San Diego Water Board does recognize an increasing body of monitoring data indicates that water quality standards are in fact not being met by many of the Copermittees' MS4 discharges. The San Diego Water Board has as a matter of practice chosen not to enforce the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a if the Copermittees are actively engaged in implementing the other requirements of the MS4 permit. The focus of the previous MS4 permits and the San Diego Water Board has been on compliance with implementation of the actions required by the permit, rather than the water quality outcomes that are expected to be achieved. The San Diego Water Board has initiated enforcement against the Copermittees on several occasions for noncompliance with permit requirements.</p> <p>As noted by the Copermittees, however, the approach of the Tentative Order is a significant departure from the approach of previous MS4 permits. Previous MS4 permits did not provide the Copermittees enough flexibility to truly implement an iterative process to adaptively manage their programs to identify innovative new ways to improve the quality of discharges from their MS4s or in the receiving waters, because the actions required by the permit were relatively fixed and prescriptive. In contrast, the Tentative Order is structured to allow the Copermittees to take advantage of the iterative process and adaptively manage their programs to focus on achieving outcomes.</p> <p>The Tentative Order has been revised to provide an optional pathway for the Copermittees to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a through implementation of technically supported iterative and adaptive management processes applicable to specific pollutant/waterbody combinations. The appropriate location in the Tentative Order for providing this "compliance mechanism," however, is not under Provision A. Instead, the appropriate location is under Provision B. Under the requirements of Provision B for the development of the Water Quality Improvement Plans, the San Diego Water Board has added Provision B.3.c. Provision B.3.c explicitly provides that a Copermittee will be in compliance with the requirements of Provision A.1.a, A.1.c and A.2.a if a specific set of</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	<p>requirements are incorporated and implemented as part of an accepted Water Quality Improvement Plan.</p> <p>Under this option, a Copermittee can demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.for specific pollutant/waterbody combinations if the Water Quality Improvement Plan demonstrates through a robust technical analysis that the water quality improvement strategies the Copermittee plans on implementing will achieve applicable water quality stand based numeric goals by a certain date. The implementation must be verified through monitoring and assessments, and the goals, strategies and schedules in the plan can be adjusted accordingly based on those results. The more specific planning, implementation, monitoring and assessment program required under Provision B.3.c, combined with a clear set of numeric goals, strategies, and schedules that the Copermittee demonstrates will achieve compliance through, becomes the iterative and adaptive management process that the San Diego Water Board may accept as being in compliance with Provisions A.1.a, A.1.c and A.2.a, as well as Provision A.4.</p> <p>As recommended by the Environmental Organizations, the San Diego Water Board did not revise Provisions A.1.a, A.1.c, A.2.a and A.4, and the language of Provision A remains consistent with State Water Board Order WQ 1999-05. The addition of Provision B.3.c provides the linkage for compliance with the discharge prohibitions and receiving water limitations through the iterative process that the Copermittees and their supporters requested.</p> <p>The San Diego Water Board did modify Provision A.1.b to clarify how to demonstrate compliance with the effective prohibition of non-storm water discharges to the MS4s. The San Diego Water Board recognizes that the effective prohibition of non-storm water discharges to the MS4 is specifically required by the federal regulations to be achieved through the implementation of an illicit discharge detection and elimination program as specified under 40CFR122.26(d)(2)(iv)(B). Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4.</p> <p>As for the requests to modify the requirements of Provision A to allow the Copermittees to utilize the Water Quality Improvement Plan to demonstrate compliance with the other requirements of Provision A pertaining to the special protections for ASBS and the TMDL requirements, the San Diego Water Board generally did not agree to modify the requirements as requested.</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS
<p>The linkage for compliance with the ASBS requirements is provided under Provision A.1.d. Provision A.1.d specifies that discharges from MS4s to ASBS are authorized subject to the Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012. The provisions of the Special Protections are provided in Attachment A to the Order for easy reference, but the Special Protections are actually part of the Ocean Plan. The requirements for the Water Quality Improvement Plan take into account the requirements for the Special Protections. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees that discharge to ASBS to demonstrate that they are in compliance with the Special Protections.</p> <p>As for the linkage for compliance with the TMDL requirements, the linkage is provided under Provision A.3.b. The Copermittees are required to comply with the WQBELs for the TMDLs in Attachment E. The requirements for the Water Quality Improvement Plan take into account the requirements for the TMDLs. The requirements of the TMDLs in Attachment E must be incorporated into the Water Quality Improvement Plan. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees subject to TMDL requirements to demonstrate that they are in compliance with the WQBELs.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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A-2 PROVISION A: PROHIBITIONS AND LIMITATIONS	
A-2	<p>COMMENT: <i>The maximum extent practicable (MEP) standard applies to both non-storm water and storm water.</i></p> <p>The Riverside County Copermittees submitted comments asserting that the MEP standard of the Clean Water Act and federal regulations applies to reducing pollutants in non-storm water discharges as well as in storm water discharges. Accordingly, non-storm water discharges are authorized to be discharged if pollutants in non-storm water are reduced to the MEP. The Riverside County Copermittees requested that the language be revised to reflect this concept throughout the Tentative Order.</p> <p>In contrast, the Natural Resources Defense Council (NRDC) submitted comments that the non-storm water action levels (NALs) in the permit may contradict the effective prohibition of non-storm water discharges to the MS4. The NRDC is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4.</p>
	<p>Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Natural Resources Defense Council</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. Building on the effective prohibition against non-storm water discharges, the Clean Water Act requirement to reduce pollutants discharged from the MS4 to the MEP standard necessarily is limited to storm water discharges. (See Attachment 1 November 5, 2009 Memorandum from San Diego Water Board Counsel, Non-Storm Water Discharges) The San Diego Water Board disagrees that including the NALs in the permit may contradict the effective prohibition of non-storm water discharges to the MS4.</p> <p>Please see the responses to comments Fnd-3 and C-1.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

A-3 PROVISION A: PROHIBITIONS AND LIMITATIONS	
<p>COMMENT: <i>The Copermitees should only be subject to "applicable" prohibitions and water quality standards in the Basin Plan, plans and policies.</i></p> <p>The Riverside County Copermitees are concerned that there are prohibitions and water quality standards included in Provisions A.1.c and A.2.a that do not apply to their jurisdictions. Thus those prohibitions or water quality standards should be deleted or clarified to state that they are only applicable if those discharges or water bodies are within their jurisdictions.</p>	<p>Copermitees Riverside County Copermitees</p>
<p>RESPONSE: The San Diego Water Board does not agree that it is necessary to delete or clarify any of the requirements under Provisions A.1.c or A.2.a.</p> <p>If there are discharge prohibitions that are not applicable, then there should not be any violations of those discharge prohibitions. Likewise, if there are water quality standards that are not applicable, there should not be any violations of those water quality standards. If, however, any of those prohibitions or water quality standards is applicable, the Copermitees are required to comply or demonstrate compliance with those prohibitions and water quality standards.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

A1-1 PROVISION A.1: Discharge Prohibitions		
	<p>COMMENT: <i>MS4 discharges to environmentally sensitive area (ESA) shellfish habitat should be prohibited.</i></p> <p>The South Laguna Civic Association commented that dry weather discharges and elevated storm water flows are incompatible with the protection of ESA shellfish habitat and should be vigorously regulated and prohibited in the Tentative Order.</p>	<p>Environmental Organizations South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that dry weather discharges and storm water flows should be regulated to protect ESA shellfish habitats.</p> <p>Provision A.1.a prohibits discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state. Provision A.2.c requires that discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters. And, specifically for dry weather discharges, Provision A.1.b requires the Copermittees to effectively prohibit non-storm water discharges to the MS4s. Thus, the Tentative Order includes requirements for MS4 discharges that are protective of ESAs.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

A1-2 PROVISION A.1: Discharge Prohibitions		
	<p>COMMENT: <i>Specify that NPDES permitted discharges to MS4s discharging to ASBS are authorized.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision A.1.d to specify that storm water and non-storm water discharges from the Copermittees MS4s from ASBS “made pursuant to NPDES permit” are authorized under the Tentative Order. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees’ MS4s that then discharge to ASBS are authorized.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to revise Provision A.1.d.</p> <p>Provision A.1.d requires discharges from the Copermittees’ MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). Provision A.1.d applies to the Copermittees’ MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. If storm water and non-storm water discharges are authorized under an NPDES permit and discharged to a Copermittee’s MS4, the Copermittee is responsible for identifying this NPDES permitted discharge to its MS4 that then discharges to ASBS. If the NPDES permitted discharge does not allow the Copermittees to be consistent with the requirements of the Special Protections, the Copermittees should notify the NPDES permitted discharger and/or the San Diego Water Board that the discharge must be brought into compliance with the requirements of the Special Protections.</p> <p>Additionally, please see the response to comment Fnd-14.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
<p>COMMENT: <i>Link compliance with prohibitions and limitations to development and implementation of Water Quality Improvement Plans.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that they be allowed to utilize the development and implementation of the Water Quality Improvement Plans as a compliance mechanism for the prohibitions and limitations of Provisions A.1 to A.3. Several Copermittees submitted separate comments in support of the request.</p> <p>Comments submitted by the Environmental Groups were not in support of such an approach, but did support incorporating numeric goals into the Water Quality Improvement Plans that are based on water quality standards and using the Water Quality Improvement Plans to hold the Copermittees accountable for achieving the water quality standards.</p>	<p>Copermittees City of Del Mar City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and the Environmental Organizations.</p> <p>The San Diego Water Board has added Provision B.3.c to provide a “pathway” to compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the response to comment A-1.</p> <p>Several commenters indicated that including an analysis to demonstrate that the implementation of the water quality improvement strategies would achieve compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a is not necessary. The San Diego Water Board disagrees that the analysis is not necessary. Without the analysis, the San Diego Water Board would not be able to make a determination that the implementation of the water quality improvement strategies would result in the achievement of and compliance with Provisions A.1.a, A.1.c and A.2.a for specific pollutant /waterbody combinations. In addition, the required analysis provides another level of transparency that would allow the public to make a determination that the Copermittees are in fact implementing strategies that are making progress toward achieving the requirements of Provisions A.1.a, A.1.c and A.2.a. Thus, the analysis has been incorporated into the requirements of Provision B.3.c.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B-2 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Support for the Water Quality Improvement Plan approach.</i></p> <p>Comments were submitted by members of the Building Industry, Industry, the Copermittees, Environmental Organizations, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally supporting the approach in the Tentative Order to utilize the Water Quality Improvement development and implementation process as a more strategic, cost effective, holistic approach to improving water quality in the San Diego Region.</p>	<p>Building Industry / Industry American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition Industrial Environmental Association Otay Land Company Otay Ranch New Homes</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition San Diego Canyonlands San Elijo Lagoon Conservancy</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Curious Company Hector Valtierra Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board appreciates the support expressed by the commenters for the Water Quality Improvement Plan and the more structured iterative and adaptive management process.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-3 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Ensure adequate public participation in the development and updating of the Water Quality Improvement Plans.</i></p> <p>Comments were submitted by members of the Building Industry, Environmental Organizations, Engineering/Design Consultants, USEPA, Societies/Associations/Coalitions, and Other Entities requesting the requirements of the Tentative Order ensure that there is adequate public participation during the development of the Water Quality Improvement Plans.</p> <p>Comments from the Environmental Organizations, the San Diego Green Building Council, and a joint comment letter from San Diego Coastkeeper and the BIA, requested that the Tentative Order require the Copermittees to form a stakeholder advisory group with knowledge of the watersheds. The comments from the Environmental Groups recommending several additional requirements for public participation during the development of the Water Quality Improvement Plans, including:</p> <ol style="list-style-type: none"> 1) Requiring the Copermittees to create a schedule for developing the Water Quality Improvement Plans, 2) Modifying the required formal public review requirements to occur after identifying priorities, after identifying strategies, and after identifying goals and assessment methods, 3) Requiring Water Quality Improvement Plans to be developed consecutively instead of concurrently, 4) Require approval of the Water Quality Improvement Plans at a public hearing, and 5) Require public participation during the adaptive management process. 	<p>Building Industry / Industry American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition San Diego Green Building Council</p> <p>Environmental Organizations Environmental Groups The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Diego Coastkeeper and BIA San Elijo Lagoon Conservancy</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government USEPA</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Hector Valtierra Curious Company Carol Crossman Gable PR Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Tentative Order should ensure adequate public participation during the development and updating of the Water Quality Improvement Plans.</p> <p>The public participation requirements for the development and updates of the Water Quality Improvement Plan</p>	

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B-3	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>are contained in Provisions F.1 and F.2.c. The San Diego Water Board has revised Provisions F.1 and F.2.c to include several of the elements into the public participation requirements as recommended by the commenters, and provide additional time for a robust public participation process to be included in the development of the Water Quality Improvement Plans.</p> <p>Provision F.1.a has been modified to include a set of public participation requirements for the development of the Water Quality Improvement Plan under Provision F.1.a.(1). Included in Provision F.1.a.(1) are requirements to: a) develop a publicly available and noticed schedule of the opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plan; b) form a Water Quality Improvement Consultation Panel that will consist of at least one San Diego Water Board staff, one representative of the environmental community, and one representative of the development community; and c) coordinate the schedules for the public participation process among the Watershed Management Areas to provide the public as much time and opportunity as possible to participate during the development of the Water Quality Improvement Plans.</p> <p>The role of the Water Quality Improvement Consultation Panel is similar to the requested stakeholder advisory group, which will review the elements that the Copermittees propose to include in the Water Quality Improvement Plan after the public is provided an opportunity to provide data, information and recommendations for each element.</p> <p>The elements of the Water Quality Improvement Plan that require public review and comment remain the same, but have been revised and reorganized under Provisions F.1.a.(2) and F.1.a.(3). The Tentative Order required a public review of the priorities and goals and then a public review of the strategies and schedules. The revised Tentative Order has been modified to first require a public review of the priorities and potential water quality improvement strategies and then a review of the goals, strategies that Copermittees plan on implementing, and the schedules. In each case, the public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermittees to provide recommendations or concurrence prior to submitting to the San Diego Water Board for a public review and comment period.</p> <p>Provisions B.2 and B.3 were also revised and reorganized to be consistent with revisions made to Provisions F.1.a.(2) and F.1.a.(3). Provision B.2.e was revised to require the Copermittees to identify the “potential” water quality improvement strategies that could be implemented to address the highest priority water quality conditions</p>	

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B-3	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>identified by the Copermitees. The requirements for identifying numeric goals and schedules for achieving the goals were moved to Provision B.3. Thus the requirements of Provision B.2 will be subject to the public participation and development process requirements of Provision F.1.a.(2), and the requirements of Provision B.3 will be subject to the public participation and development process requirements of Provision F.1.a.(3).</p> <p>Provision F.1.b has also been revised to clarify the completed Water Quality Improvement Plan public review and acceptance process. The San Diego Water Board will make the determination if a public hearing to accept the Water Quality Improvement Plans will be required, or if public input will be limited to written comments. Provision F.1.b has been revised to clarify when the Water Quality Improvement Plans will be considered accepted.</p> <p>Finally, Provision F.2.c has been revised to clarify the requirements for public participation during the updates of the Water Quality Improvement Plans. The public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermitees to provide recommendations or concurrence prior to submitting the requested updates to the San Diego Water Board.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-4 PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
<p>COMMENT: <i>Allow current permit requirements to remain in place until Water Quality Improvement Plans are developed.</i></p> <p>Comments were submitted by members of the Building Industry, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities requesting the Tentative Order allow the requirements of the current permits to remain in place until the Water Quality Improvement Plans were developed. There was general concern that enforcement and implementation of the new requirements of the Tentative Order would preempt the Water Quality Improvement Plans before the Water Quality Improvement Plans had a chance to be developed.</p>	<p>Building Industry / Industry Associated General Contractors of America Otay Land Company Otay Ranch New Homes</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions BIOCUM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
<p>RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements should remain in place until the Water Quality Improvement Plans are developed and accepted by the San Diego Water Board.</p> <p>According to the second paragraph of the opening to Provision E, <i>“Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E the Copermittee must continue implementing its current jurisdictional runoff management program.”</i> Provision F.2.c does not require the jurisdictional runoff management program documents to be updated until 3 months after the acceptance of the Water Quality Improvement Plan.</p> <p>The Copermittees will be subject to requirements of Provision A (Prohibitions and Limitations), and responsible for implementing the requirements of Provision D (Monitoring and Assessment Program Requirements), Provision F (Reporting), and Attachment E (Specific Provisions for TMDLs) upon the effective date of the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-5 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Adopt Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</i></p> <p>Comments were submitted by Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requesting that the San Diego Water Board adopt the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</p>	<p>Engineering/Design Consultants Latitude 33 Planning and Engineering</p> <p>Societies/Associations/Coalitions BIOCOM San Diego Association of Realtors</p> <p>Other Entities Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board disagrees with adopting the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.</p> <p>The Tentative Order, when adopted by the San Diego Water Board, is an Order issued to the Copermittees to implement the requirements of the Clean Water Act and Code of Federal Regulations. The Tentative Order includes specific requirements that must be included in the Water Quality Improvement Plans, which are to be developed by the Copermittees. The Water Quality Improvement Plans themselves, therefore, cannot and should not be adopted as Orders issued by the San Diego Water Board.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-6 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Align Water Quality Improvement Plan requirements with the Jurisdictional Runoff Management Program requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermitees each submitted comments requesting that requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermitees assert that the jurisdictional runoff management program requirements of Provision E are a “one size fits all” set of requirements, and the requirements of the Water Quality Improvement Plan become “additive” rather than “complimentary.” Several Copermitees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept.</p> <p>The Environmental Groups are concerned with the flexibility of the jurisdictional runoff management program requirements and commented that the Water Quality Improvement Plan should include a detailed list of activities and what activities each Copermitee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements, would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermitees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermitee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermitee.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermitee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan.</p> <p>The revised Tentative Order requires the Copermitees to clearly present the water quality improvement strategies that each Copermitees will implement within its jurisdiction in the Water Quality Improvement Plan. Each Copermitee must incorporate the strategies that the Copermitee commits to implement, as identified in the Water Quality Improvement Plan, into its jurisdictional runoff management program document.</p> <p>Please see the response to comment E-1.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B-7 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Recommendations for revisions to the introductory paragraph of Provision B.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments recommending revisions to the introductory paragraph under Provision B. The Copermittees recommended revising the goal statement to be focused more on MS4 discharges and not on receiving waters. The Copermittees also recommended adding a statement about the linkage between the Water Quality Improvement Plan and compliance with the prohibitions and limitations of Provision A.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the recommended revisions to the introductory paragraph of Provision B.</p> <p>The recommended revisions by the Copermittees were not necessary and not appropriate for the introductory paragraph to Provision B. After considering the comments and recommendations from the Copermittees, however, the San Diego Water Board did make one minor revision to the introductory paragraph of Provision B. Please see the revised Tentative Order for the revision to the introductory paragraph to Provision B.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B1-1 PROVISION B.1: Watershed Management Areas	
	<p>COMMENT: <i>Allow San Diego County to use Watershed Urban Runoff Management Plan (WURMP) for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.</i></p> <p>The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered by the Tentative Order. The Riverside County Copermittees supported the request.</p>
	<p>Copermittees County of San Diego Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has revised the footnote to Table B-1 to state that the County of San Diego is not required to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees receive notification of coverage under the Tentative Order. Until then, the County of San Diego will be required to implement their jurisdictional runoff management program in conformance with the requirements of Order No. R9-2007-0001, and implement the transitional monitoring and assessment requirements of Provision D, the transitional reporting requirements of Provisions F.3.b, and the TMDL requirements in Attachment E.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B2e-1 PROVISION B.2.e: Numeric Goals and Schedules	
	<p>COMMENT: <i>Clearly state that numeric goals are enforceable or not enforceable limitations.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order specify that numeric goals are not enforceable limitations. In contrast, the USEPA recommended that the Tentative Order or Fact Sheet clarify that the numeric goals (and the schedule for attainment of the goals) would become enforceable requirements once the Water Quality Improvement Plans are accepted by the San Diego Water Board.</p>
	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees that additional revisions are necessary to specify the numeric goals are not enforceable limitations. The San Diego Water Board agrees with the USEPA interpretation, but disagrees with the recommendation.</p> <p>The San Diego Water Board did not modify the language of Provision B.2.e (now Provision B.3.a.(1) in the revised Tentative Order) because the San Diego Water Board will utilize the numeric goals to determine if the Copermittees are making progress toward improving water quality.</p> <p>As part of the iterative and adaptive management process, the Copermittees are allowed to modify the numeric goals and the schedules for achieving the goals if the monitoring and assessments provide the rationale to do so. If, however, the Copermittees did not modify the numeric goals or the schedules to achieve the goals, and an interim or final goal was not achieved pursuant to the schedule, the San Diego Water Board would consider the failure to achieve the numeric goal a point of non-compliance. The non-compliance would include the failure to achieve the numeric goal within the schedule, the failure to implement the iterative and adaptive management process, and a demonstration that one or more prohibitions or limitations under Provision A have been violated. Thus, the numeric goals and schedules are enforceable.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B2e-2 PROVISION B.2.e: Numeric Goals and Schedules		
	<p>COMMENT: <i>Remove or modify the language for the 10 year limitation of the schedules to achieve numeric goals.</i></p> <p>The Orange County and San Diego County Copermittees each submitted comments requesting modifications to the requirement to achieve the numeric goals within 10 years of the effective date of the Tentative Order. The Orange County Copermittees provided several reasons for removing the 10 year requirement. The San Diego County Copermittees requested that the Tentative Order clarify that the 10 year requirement be limited to achieving a goal that represents progress toward attainment of water quality standards.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to remove the requirement.</p> <p>The San Diego Water Board has removed the requirement that the Copermittees must include the final dates for achieving the numeric goals that do not initially extend more than 10 years beyond the effective date of the Tentative Order. In its place, the Copermittees must develop a schedule to achieve the numeric goals within a “reasonable period of time” that can be identified during the public participation process required for the development of the Water Quality Improvement Plans. The modifications are provided under Provision B.3.a.(2) of the revised Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B3-1	PROVISION B.3: Water Quality Improvement Strategies and Schedules	
	<p>COMMENT: <i>Provide a mechanism for compliance with the prohibitions and limitations in Provision A through the Water Quality Improvement Plan.</i></p> <p>The San Diego County Copermittees proposed modifications to the requirements of Provision B.3 to include a compliance mechanism that could be included in the Water Quality Improvement Plan to demonstrate compliance with the prohibitions and limitations in Provision A. The San Diego County Copermittees proposed including an option to perform a Reasonable Assurance Analysis to demonstrate that the water quality improvement strategies will attain discharge prohibitions, receiving water limitations, and effluent limitations. The San Diego Unified Port District submitted separate comments that did not support the inclusion of a compliance option utilizing the Water Quality Improvement Plan.</p> <p>The Orange County and Riverside County Copermittees supported the concept of allowing the Copermittees to demonstrate that the water quality improvement strategies in the Water Quality Improvement Plan will attain discharge prohibitions, receiving water limitations, and effluent limitations, but objected to requiring a Reasonable Assurance Analysis.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p>
	<p>RESPONSE: The San Diego Water Board agrees with including an optional mechanism for compliance with the prohibitions and limitations in Provision A as part of Provision B.3.</p> <p>The San Diego Water Board has added Provision B.3.c as an optional mechanism that the Copermittees may utilize to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the responses to comments A-1 and B-1.</p>	

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B3-2 PROVISION B.3: Water Quality Improvement Strategies and Schedules		
	<p>COMMENT: <i>Allow the Copermittees to "reduce" instead of "prevent and eliminate" non-storm water discharges through the Water Quality Improvement Plan.</i></p> <p>Comments from the Building Industry included a recommendation to modify the language of Provision B.3 to allow the Copermittees to "reduce" non-storm water discharges instead of "prevent and eliminate" these discharges to the MS4.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the proposed recommendations.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that the MS4 dischargers must "effectively prohibit" non-storm water discharges to the MS4, not just "reduce" non-storm water discharges to the MS4. Provision B.3 included the phrase "prevent and eliminate" to specify what "effectively prohibit" means. To be consistent with the language in the Clean Water Act, the San Diego Water Board has revised "prevent and eliminate" to "effectively prohibit" in Provision B.3.</p>	

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B5-1 PROVISION B.5: Iterative Approach and Adaptive Management Process		
	<p>COMMENT: <i>Recommendations for minor revisions to the language under iterative and adaptive management process requirements.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments recommending minor revisions to the language under Provision B.5 to “clarify” the requirements or to be consistent with their comments regarding non-storm water discharges (see comment Gnl-13).</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the recommended revisions to Provision B.5.</p> <p>The San Diego Water Board did not make any of the minor revisions recommended by the Copermittees as they were not necessary, not appropriate, or changed the intent of the requirement. The San Diego Water Board did, however, make several revisions to Provision B.5 to be consistent with the revisions made to Provisions B.2 and B.3, as discussed in the response to comment B-3.</p>	

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B6-1 PROVISION B.6: Water Quality Improvement Plan Submittal, Updates, and Implementation	
B6-1	<p>COMMENT: <i>Clarify that the implementation of Water Quality Improvement Plans may demonstrate TMDLs are not required.</i></p> <p>The San Diego County Copermittees requested that the Tentative Order, under Finding 27, clarify that the implementation of the requirements “will” not “may” allow the San Diego Water Board to include an impaired water body in Category 4 in the Integrated Report (i.e. TMDL not required). The USEPA recommended including language in the Fact Sheet to clarify that the monitoring and assessments implemented as part of the Water Quality Improvement Plan may demonstrate that TMDLs are not necessary for water bodies listed on the 303(d) List.</p>
	<p>Copermittees San Diego County Copermittees State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request by the Copermittees. The San Diego Water Board agrees with the recommendation from the USEPA.</p> <p>Finding 27 is correct to state that the implementation of the Water Quality Improvement Plan “may” allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. Please see the response to comment Fnd-8.</p> <p>The San Diego Water Board has modified the Fact Sheet discussion for Provision B.6 as recommended by the USEPA.</p>

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C-1 PROVISION C: ACTION LEVELS	
C-1	<p>COMMENT: <i>Clarify that action levels are enforceable or not enforceable limitations.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order clarify that the non-storm water action levels (NALs) and storm water action levels (SALs) developed pursuant to Provision C are not enforceable limitations. San Diego Gas and Electric and the Southern California Gas Company requested that the permit clarify that the NALs and SALs are not applicable to non-storm water discharges that have NPDES permits.</p> <p>The Natural Resources Defense Council is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4. The USEPA also expressed concern that action levels based on wasteload allocations (WLAs) established as WQBELs in the TMDL requirements of Attachment E may be interpreted as not enforceable.</p>
	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Natural Resources Defense Council</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees that additional clarification of the enforceability of the action levels is necessary.</p> <p>The San Diego Water Board did not revise the footnotes as requested by the Copermittees, but did revise the footnotes to clarify that NALs and SALs are not enforceable limitations unless they are based on WQBELs expressed as interim or final effluent limitations for any TMDLs in Attachment E and the interim or final compliance dates have passed.</p> <p>The San Diego Water Board also revised the introductory paragraph under Provision C.1 to specify that the NALs must be incorporated into the Water Quality Improvement Plans to support the development and prioritization of water quality improvement strategies for “effectively prohibiting” not just “addressing” non-storm water discharges to the MS4, consistent with the requirements of the Clean Water Act.</p> <p>Finally, the San Diego Water Board did not revise the requirements of Provision C to clarify that NALs do not apply to non-storm water discharges that have NPDES permits. The requirements of the Tentative Order, including the NALs and SALs, apply to the Copermittees’ MS4 discharges, not to other NPDES permitted discharges, thus it is not necessary or appropriate to specify that the NALs are not applicable to other NPDES permitted discharges.</p>

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C-2 PROVISION C: ACTION LEVELS		
C-2	<p>COMMENT: <i>Allow the Copermittees to develop action levels instead of prescribing required action levels.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that they be allowed to develop or propose non-storm water action levels (NALs) and storm water action levels (SALs) as part of the Water Quality Improvement Plan development process rather than being required to include a prescribed set of NALs and SALs in addition to other NALs and SALs that may be developed as part of the Water Quality Improvement Plan. The Copermittees expressed concern that requiring the prescribed NALs and SALs under Provision C would result in unnecessary analyses for constituents that are not a priority identified in the Water Quality Improvement Plan.</p> <p>The Orange County and San Diego County Copermittees are concerned that the inclusion of the chemically-based prescribed action levels under Provision C may not be the best metric to measure progress toward protection and enhancement of receiving waters if the numeric goals are biologically- or physically-based.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request to remove the requirements to include the prescribed NALs and SALs in the Water Quality Improvement Plans.</p> <p>The NALs and SALs under Provision C have been included to support the development and prioritization of the water quality strategies that will be implemented based on the highest priority water quality conditions identified by the Copermittees in the Water Quality Improvement Plans.</p> <p>The NALs and SALs have been included as a tool that the Copermittees and the San Diego Water Board can utilize to determine if the Copermittees are implementing the requirements of the Clean Water Act for MS4 permits, which is to <i>effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges from the MS4 to the MEP</i>. The NALs and SALs are not new, and are included in both of the current MS4 permits issued to Orange County (Order No. R9-2009-0002) and Riverside County (Order No. R9-2010-0016).</p> <p>The Copermittees are required to effectively prohibit non-storm water discharges to their MS4s, which in turn should result in little to no discharges from their MS4s to receiving waters. If there are non-storm water discharges from the Copermittees' MS4s to receiving waters, those discharges should only be NPDES permitted discharges. Even if those discharges are NPDES permitted discharges, the Copermittees are responsible for demonstrating that those discharges are not illicit discharges by identifying the sources as</p>	

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C-2	PROVISION C: ACTION LEVELS
	<p>NPDES permitted discharges.</p> <p>The prescribed NALs in Table C-1 through C-4 are associated with most if not all the pollutants that are known or suspected to be causing or contributing to impairments in water bodies on the 303(d) List for the San Diego Region. The NALs are appropriately based on water quality objectives because non-storm water discharges that do not contain pollutants at levels in exceedance of the NALs are not expected to cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Thus, the prescribed NALs have been included to allow the Copermittees to prioritize their efforts in effectively prohibiting unpermitted non-storm water discharges to their MS4s, demonstrate that they have effectively prohibited non-storm water discharges to their MS4s that could cause or contribute to exceedances of water quality standards, or identify NPDES permitted sources that are resulting in discharges from their MS4s that are causing or contributing to exceedances of water quality standards in receiving waters. In any case, the prescribed NALs are necessary to allow the San Diego Water Board to determine if the Copermittees are effectively prohibiting non-storm water discharges to the MS4.</p> <p>In contrast, the prescribed SALs are not based on water quality objectives, but set at higher levels because the San Diego Water Board recognizes that reducing pollutants in wet weather discharges from the MS4s to water quality objectives is difficult. The prescribed SALs, however, will allow the Copermittees to prioritize their efforts in reducing pollutants in storm water discharges from their MS4s, and allow the San Diego Water Board to determine if the Copermittees are reducing pollutants in storm water discharges from their MS4s to the MEP.</p> <p>The San Diego Water Board disagrees with the concerns about monitoring for constituents that are not associated with the highest priority water quality conditions. Periodically analyzing non-storm water and storm water discharges from the Copermittees' MS4 for other pollutants other than those associated with the highest priority water quality conditions is necessary if the Copermittees would like to re-prioritize or identify new priority water quality conditions that will be addressed. The San Diego Water Board does recognize that there is a cost associated with analyzing for additional constituents. Thus, the San Diego Water Board has modified the MS4 outfall monitoring requirements to reduce the number of dry weather MS4 outfall monitoring stations that must be analyzed (see Provision D.2.b.(2)(b) of the revised Tentative Order), and provided the Copermittees some flexibility to modify the analytes for the wet weather MS4 outfall monitoring stations (see Provision D.2.c.(5)(f) of the revised Tentative Order).</p>

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C-2	PROVISION C: ACTION LEVELS	
	<p>As for the concerns about the chemically-based NALs and the biologically- or physically-based numeric goals for receiving waters, the San Diego Water Board disagrees that they cannot be linked or may be incompatible. Biologically- or physically-based numeric goals will likely be measured in the receiving waters. The chemically-based NALs apply to the MS4 outfalls. The quality of the MS4 discharges and the improvement of biological or physical measurements can be linked. Both are likely necessary to demonstrate that MS4 discharges are either not causing or contributing to a biological or physical impairment of the receiving water, or an improvement in MS4 discharges is resulting in improvements in the biological or physical conditions of the receiving water.</p> <p>The San Diego Water Board did not revise Provision C as requested by the Copermitees.</p>	

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C-3	PROVISION C: ACTION LEVELS	
	<p>COMMENT: <i>Notes to Table C-3 should refer to the California Toxics Rule (CTR) instead of including equations.</i></p> <p>The San Diego County Copermittees recommended removing the equations to calculate the non-storm water action levels (NALs) for the priority pollutants from the notes under Table C-3 and instead refer to the CTR under 40 CFR 131.38(b)(2), where the equations can be found.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendations.</p> <p>The San Diego Water Board has revised the notes under Table C-3 to refer to 40 CFR 131.38(b)(2).</p>	

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C-4 PROVISION C: ACTION LEVELS		
	<p>COMMENT: <i>Action levels should be included for insecticides.</i></p> <p>The Los Penasquitos Lagoon Foundation recommended specifying action levels for insecticides.</p>	<p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board disagrees with this recommendation.</p> <p>Provision C includes numeric actions levels for specific pollutants consistent with Order Nos. R9-2009-0002 and R9-2010-0016. Provisions C.1.b and C.2.b require the Copermittees to develop additional numeric action levels for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance associated with the highest water quality priorities related to non-storm water and storm water discharges from the MS4s, respectively.</p> <p>If insecticides cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan, the Copermittees are required to incorporate numeric action levels into the Water Quality Improvement Plan for insecticides. The San Diego Water Board did not revise Provision C to specify action levels for insecticides.</p>	

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D-1 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Revise monitoring and assessment requirements as recommended by San Diego County Copermittees.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees designed a question driven monitoring and assessment program that would allow the Copermittees to adaptively manage their storm water programs more effectively and efficiently based on the monitoring data collected and the program assessments. The monitoring and reporting program in Provision D of the Tentative Order largely includes the monitoring and assessment program designed by the Copermittees. The commenters requested further revisions be made to the monitoring and assessment program in Provision D of the Tentative Order.</p> <p>Commenters from Environmental Organizations and Industry support the monitoring and assessment program in Provision D, however stress the importance of the Tentative Order requiring enough monitoring so that the Copermittees are able to track specific short, medium, and long term progress towards detecting and eliminating illicit discharges and improving water quality throughout the San Diego Region. Failing to require enough monitoring puts at risk a Copermittee’s ability to detect increases in pollutant discharges and their effects on receiving water conditions.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Copermittees City of San Diego City of Imperial Beach City of National City</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees as well as the Environmental Organizations and Industry.</p> <p>Provision D largely includes the question driven monitoring and assessment program collectively designed by the Copermittees. The program requires a sufficient amount of monitoring such that the Copermittees are able to track specific short, medium, and long term progress towards the goals established in the Water Quality Improvement Plan. Through development of the Water Quality Improvement Plans, the monitoring and assessment program required in Provision D can be modified to address specific needs and strategies developed to address the highest priority water quality conditions within each jurisdiction in each Watershed Management Area. The monitoring approach in Provision D has been further refined, based on the specific comments received on the Tentative Order, to allow Copermittees to more efficiently and effectively address the critical questions necessary to adaptively manage their storm water programs and achieve improved water quality within their jurisdiction and each watershed throughout the San Diego Region.</p>	

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
<p>COMMENT: <i>Include requirements to track and monitor progress toward watershed goals and health of watersheds.</i></p> <p>The Coastal Environmental Rights Foundation, Environmental Health Coalition, and the San Diego Coastkeeper jointly provided comments expressing concern that the monitoring and assessment requirements of the Tentative Order are not robust enough to: 1) support the Copermittees’ ability to track progress towards achieving the goals and requirements of the Clean Water Act and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, supporting the beneficial uses of the receiving waters), 2) enable the San Diego Water Board to determine compliance with the requirements of the Tentative Order, and 3) inform the public of the Copermittees’ compliance with the requirements of the Tentative Order and progress towards achieving its goals.</p> <p>Other commenters from the Environmental Organizations expressed their support to include more monitoring in the Tentative Order, specifically requesting monitoring that provides assurances that Copermittees are able to detect any increase in pollutant discharges from their MS4 systems and be better able to address them sooner rather than later. Commenters from Industry requested the monitoring approach be iterative, strategic, cost-effective and question–driven so that it can provide the Copermittees with cost-effective informed data to guide their future storm water program actions through coordination with the San Diego Water Board staff. Several other commenters provided topic specific comments related to the need for mapping of coastal receiving waters and creeks.</p> <p>The USEPA commented on the need to bring the toxicity sampling requirements up to date with those recently adopted in other general and regional MS4 permits, as well as clarification to the monitoring locations required for determining compliance with TMDLs.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Environmental Organizations South Laguna Civic Association CERF, EHC and SDCK Environmental Groups Laguna Bluebelt Coalition</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with commenters from the Environmental Organizations that the monitoring and assessment requirements of the Tentative Order are not robust enough to support the Copermittees’ ability to track progress towards achieving goals and requirements of the Clean Water Act (CWA), the California Water Code (CWC), and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, and supporting the beneficial uses of the receiving waters).</p> <p>Provision D includes a monitoring program structure that is expected to be refined through the Water Quality</p>	

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

Improvement Plan. The Provision D monitoring and assessment program should be customized to achieve the desired outcomes of the Water Quality Improvement Plan and ultimately the CWA and the CWC. The desired outcomes of the CWA and the CWC are about conditions in water bodies (chemical, physical, and biological integrity), and information about conditions in water bodies is essential to help guide the work of protection and restoration. The Tentative Order's monitoring and assessment program requires collection of chemical, physical, and biological data from outfalls and receiving waters designed to inform the Copermittees, the San Diego Water Board, and the public about the condition of the discharge and the conditions of the water bodies in the San Diego Region. The Tentative Order's assessment requirements are designed to take the data collected from the monitoring program and convert it to useful information about the successfulness of the Copermittees' storm water management programs to achieve the desired outcomes of the CWA and the CWC.

The San Diego Water Board agrees with comments from Industry that the monitoring program needs to be iterative, strategic, cost-effective and question-driven. As part of the iterative approach and adaptive management requirements of the Tentative Order, Provision D.4 requires the Copermittees to integrate: 1) the data collected pursuant to Provision D.1 through D.3; 2) the assessment findings required pursuant to Provision D.4a-c; and, 3) information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E to assess the effectiveness of, and any necessary modifications to, the Water Quality Improvement Plans. The requirements of the Tentative Order allow the Copermittees to adapt the monitoring based on watershed specific priority conditions within the confines of a robust Water Quality Improvement Plan development and implementation process.

The San Diego Water Board agrees that the Tentative Order should be modified to increase clarity of what is required of each Copermittee, thus enabling the San Diego Water Board to better determine compliance. Several commenters provided suggested improvements to Provision D language. Selected modifications to Provision D of the Tentative Order were made to increase clarity of what is expected of the Copermittees throughout the iterative monitoring approach in efforts to increase specificity of what is minimally required and how compliance with the Tentative Order will be determined.

The San Diego Water Board also agrees that the Tentative Order should be modified to increase the public's awareness of the Copermittees' compliance and progress towards achieving the goals of the Water Quality Improvement Plans. Provision F.1.a was modified to require the Copermittees implement a robust public participation process with multiple opportunities for public participation throughout the development of each component of the Water Quality Improvement Plan. Provision F.1.b provides the public another opportunity to

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
<p>submit comments on the Water Quality Improvement Plan during the acceptance process. The Copermitees are also required to include public participation during any updates to the Water Quality Improvement Plan. Finally, the data and information collected from monitoring, and the findings from the assessments will be reported in the Water Quality Improvement Plan Annual Reports.</p> <p>The San Diego Water Board has revised Provision D to be consistent with the toxicity sampling requirements included in the most recently adopted State Water Board and other Regional Water Board MS4 permits. Modifications were also made to Provision D requirements to clarify the monitoring locations for determining compliance with TMDLs.</p>

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D-3 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Requests for changes to schedules for monitoring and monitoring reports.</i></p> <p>The San Diego County Copermittees submitted comments requesting an extension to the duration of the transitional monitoring program to accommodate the acceptance process of the Water Quality Improvement Plan and municipal program budget cycles. The Orange County Copermittees also submitted a comment requesting the commencement of the wet weather transitional outfall monitoring be delayed to year 2 of the transitional period to allow time to inventory and evaluate MS4 outfalls as required by Provision D.2.a.(1).</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comment that the transitional monitoring program should be continued until such time that the monitoring program within a Water Quality Improvement Plan is accepted by the San Diego Water Board. Provision D.1.a. Receiving Water, D.2.a. MS4 Outfall Discharge Monitoring, D.2.a.(2) Dry Weather MS4 Outfall Discharge Field Screening, and D.2.a.(3) Wet Weather MS4 Outfall Discharge Monitoring have been revised to require the Copermittees to conduct the transitional monitoring program until the Water Quality Improvement Plan is accepted.</p> <p>The San Diego Water Board disagrees with the recommendation to begin wet weather transitional monitoring in year two of the transitional period. Municipalities have already mapped the location of their MS4s for operation and maintenance reasons. Municipalities are also already aware of the majority of information listed in Provision D.2.a.(1), therefore delaying the commencement of the transitional wet weather MS4 outfall monitoring is not appropriate and no change to the Tentative Order was necessary.</p>	

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D-4 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
D-4	<p>COMMENT: <i>Require the Copermittees to utilize monitoring data from third party sources.</i></p> <p>Comments submitted by Environmental Groups support the position that the Tentative Order should require the Copermittees to use third party data that meets particular criteria in their efforts to assess the watersheds and progress towards achieving water quality standards. The particular criteria would require third parties to maintain and make available for review the quality assurance plan, list of methods used, and standard operating procedures for the data. Additionally, the commenters requested the Tentative Order specify that data is “appropriate” if it has been collected using the latest Standard Methods of Water and Wastewater Analysis. The commenters further requested the Tentative Order require the Copermittees to solicit and evaluate third party data that meets the Tentative Order’s criteria for collection, not just the data collected pursuant to Provisions D.1, D.2, and D.3 when evaluating the causes of water quality conditions. Lastly, the commenters support the position that the Copermittees should be allowed to partner with environmental groups or other third parties to complete regional special studies.</p>	<p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Copermittees should be required to use appropriately collected data from third parties during their efforts to assess conditions of the watershed.</p> <p>During development of the Water Quality Improvement Plan, the Copermittees are required under Provision B.2.a.(6) and Provision B.2.d.(4)(e) to consider available, relevant, and appropriately collected and analyzed data, information, or studies during their efforts to identify water quality priorities based on impacts of MS4 discharges on receiving waters and pollutant sources and/or stressors that contribute to the highest priority water quality conditions. Provision B.2.a.(6) and Provision B.2.d.(4)(e) allow the Copermittees to consider other data, not just data collected by the Copermittees. Additionally, Provision D.2 allows any data, “<i>not collected specifically for the Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of the Order</i>” to be used by the Copermittees in their MS4 outfall monitoring program. Lastly, the assessments required under Provision D.4 require evaluation of the data collected pursuant to Provisions D.1, D.2, and D.3, which isn’t restricted to that data which is collected solely by the Copermittees, and which will be heavily influenced by the Water Quality Improvement Plans which are required to use “<i>other available, relevant, and appropriately collected data, information, and studies.</i>”</p> <p>The San Diego Water Board agrees that the Copermittees should be allowed to partner with Environmental Groups or other third parties to complete regional special studies and additional language has been added to Provision D.3.</p>	

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D-5 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
D-5	<p>COMMENT: <i>Include monitoring that will ensure compliance and jurisdictional accountability.</i></p> <p>The Coastal Environmental Rights Foundation (CERF), Environmental Health Coalition (EHC), and the San Diego Coastkeeper (SDCK) collectively submitted comments in support of increasing the nature, frequency, and amount of monitoring in the Tentative Order. The commenters expressed concern that the “lax approach” to monitoring currently in the Tentative Order is not adequate to assess compliance with the requirements.</p> <p>The USEPA requested the Tentative Order be more specific with regards to required monitoring locations and minimum monitoring frequencies to determine compliance with the TMDLs in Attachment E.</p> <p>The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required to support the San Diego Water Board’s and the Copermitees’ ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters.</p>
	<p>Copermitees San Diego Unified Port District / Brown and Winters</p> <p>Environmental Organizations CERF, EHC and SDCK</p> <p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally disagrees with the comments from the Environmental Organizations that the monitoring approach in Tentative Order is too “lax.” However, the San Diego Water Board agrees that certain monitoring provisions need additional specificity requiring minimum monitoring frequencies and monitoring at specific locations to track compliance with the TMDLs in Attachment E to the Tentative Order.</p> <p>The monitoring and assessment program in the Tentative Order is a question-driven monitoring approach largely designed to place monitoring resources where they are most needed. In order to answer the questions and accomplish efficiencies, the monitoring approach for non-storm water includes screenings, prioritization, and collection of data through visual observations. The Environmental Organizations call specific attention to the MS4 outfall screening required during the transitional monitoring period and monitoring the 10 highest priority non-storm water persistent flow MS4 outfall locations during the post transitional monitoring period. The San Diego Water Board considers this MS4 outfall screening approach necessary for the Copermitees to identify the highest priority non-storm water persistent flows and eliminate them.</p> <p>Elimination of non-storm water flows is a priority of the Tentative Order because eliminating non-storm water flows is consistent with the Clean Water Act requirement to effectively prohibit non-storm water discharges to the MS4. Elimination of non-storm water flows is the most effective way to prevent 100 percent of the pollutants in the non-storm water discharges from causing or contributing to exceedances in receiving water quality</p>

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D-5 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
<p>standards. Therefore, the Tentative Order requires more attention (monitoring, screening, and sampling) at the outfalls to eliminate non-storm water flows. That attention is based on a prioritization to address the outfalls causing or contributing to the very highest priority water quality conditions first.</p> <p>The monitoring and assessment program is designed to be dynamic with collection of data during both wet and dry weather at the MS4 outfalls and in the receiving water. The San Diego Water Board has made revisions in response to comments to ensure the monitoring program in the Tentative Order will be sufficient to inform all stakeholders and the San Diego Water Board on the Copermittees' progress to effectively eliminate non-storm water flows, reduce pollutants in storm water to the maximum extent practicable, and protect conditions in the receiving waters from MS4 discharges. The monitoring and assessment program is adaptable through the Water Quality Improvement Plan to allow the Copermittees to address the highest water quality priorities in a focused manner, directing resources towards those areas or sources within their jurisdiction causing and contributing to the priority water quality conditions.</p> <p>To address the comment on public transparency, the San Diego Water Board has modified the Water Quality Improvement Plan Development process of Provision F.1.a to require the Copermittees to identify the opportunities for public involvement in the development of the Water Quality Improvement Plans. Provision F.4 requires Copermittees to place data and information available to the public on the Regional Clearinghouse. Additional public participation and notification requirements can be found in Provision F that address comments regarding the public access to information concerning the nexus between the health of the receiving waters and the water quality conditions of the discharges from the Copermittees' MS4s.</p> <p>The USEPA requested the Tentative Order to be more specific with regards to the monitoring required to determine compliance with the TMDLs in Attachment E. Provision D.2.c.(2) now requires wet weather outfall monitoring be conducted at least once per year (during the transitional monitoring the Copermittees are still required to sample twice per year), with a requirement that the Copermittees may need to increase the frequency of monitoring to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. Additionally, language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations.</p> <p>The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required</p>

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D-5	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	<p>to support the San Diego Water Board's and the Copermittees' ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters. The San Diego Water Board modified Provisions D.2.b.(2)(b) and D.2.c.(1)-(2) in response to USEPA's comments, thereby specifying a minimum frequency for MS4 outfall monitoring during wet weather and requiring both MS4 outfall and receiving water monitoring station locations be suitable to determine compliance with TMDLs in Attachment E, as well as suitable to determine progress towards achieving the goals of the Water Quality Improvement Plans.</p> <p>Provision D.4.b requires the Copermittees to utilize a watershed model to calculate or estimate the total flow volume and pollutant loadings during wet weather and dry weather discharges from the Copermittee's jurisdiction within the Watershed Management Area. These modifications to Provision D, along with the newly revised Water Quality Improvement Plan development process, address the comments on requiring more monitoring to determine compliance. Additionally, the Tentative Order does not preclude a Copermittee from collecting additional monitoring above what is required, if they deem it necessary to demonstrate that the sources are outside of their jurisdictional legal authority to control.</p>	

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D-6 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
<p>COMMENT: <i>Provide the County of San Diego an alternative transitional monitoring and assessment program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the permit.</i></p> <p>The monitoring and assessment program requirements should account for the phased coverage of the Riverside County Copermittees at a later date than the San Diego County Copermittees with regards to the Santa Margarita River Watershed Management Area.</p>	<p>Copermittees County of San Diego</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenter.</p> <p>Footnote 3 in Table B-1 of Provision B and Provision D.2.a.(3)(a)(iii), have been revised to allow the County of San Diego to delay development of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under the Tentative Order. Footnote 3 in Table B-1 of Provision B clarifies that the County of San Diego is not required to implement the requirements of Provision B until the Riverside County Copermittees have been notified of coverage, but are required to implement the requirements of Provision D and Attachment E for its jurisdiction within the Santa Margarita River Watershed Management Area.</p> <p>Additionally, Provision D.2.a.(3)(a)(iii) was added to specify that the County of San Diego must select at least two (2) wet weather MS4 outfall discharge monitoring stations, reduced from the 5 stations required in Provision D.2.a.(3)(a)(i), for the portion of the Santa Margarita River Watershed Management Area within its jurisdiction until the Riverside Copermittees are notified of coverage. After the Riverside Copermittees are notified of coverage, the County of San Diego in concert with the County of Riverside Copermittees must comply with Provision B requirements and prepare a Water Quality Improvement Plan and implement the monitoring and assessment requirements according to Provision D for the Santa Margarita River Watershed Management Area.</p>	

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D1-1 PROVISION D.1: Receiving Water Monitoring Requirements	
<p>COMMENT: <i>Requests for "clarifications" of receiving water monitoring requirements.</i></p> <p>The Riverside County Copermitees provided suggested changes to the language in Provision D to clarify that the receiving water monitoring required pursuant to Provision D.1.a.(3) and D.1.e must be conducted as applicable to the Watershed Management Area and the Copermitees' MS4 discharges. The Riverside County Copermitees want a distinction written into the requirements because some of the monitoring requirements only apply to MS4 discharges to certain water bodies and not all Copermitees within a Watershed Management Area will have discharges to that water body.</p> <p>The USEPA requested the Tentative Order be more specific with regards to the transitional and post transitional receiving water monitoring required (frequency and station location) to determine compliance with the TMDLs in Attachment E.</p>	<p>Copermitees Riverside County Copermitees State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with the requested changes to Provisions D.1.a.(3) and D.1.e.</p> <p>The requested changes to Provision D.1.a.(3) were not incorporated because the intent is to require the Copermitees, during the transitional monitoring period, to participate in regional receiving water monitoring programs, as applicable to the Watershed Management Area, including participation in (a) Storm Water Monitoring Coalition Regional Monitoring, (b) Southern California Bight Regional Monitoring, and (c) Sediment Quality Monitoring. Provision D.1.a.(3) correctly conditions the requirement by stating, 'as applicable' to the Watershed Management Area. For example, the expectation is that the Riverside County Flood Control and Water Conservation District, a current member of the Southern California Stormwater Monitoring Coalition (SMC), participate in SMC monitoring within the Watershed Management Area(s), in which their jurisdiction lies.</p> <p>The SMC was formed in 2001 by cooperative agreement of the Phase I municipal storm water NPDES lead Copermitees (including the Riverside County Flood Control and Water Conservation District), the NPDES regulatory agencies in southern California (including the San Diego Water Board) and the Southern California Coastal Water Research Project. It is the goal of the SMC to develop the technical information necessary to better understand storm water mechanisms and impacts, and then develop the tools that will effectively and efficiently improve storm water management decision-making. The SMC develops and funds cooperative projects to improve knowledge of storm water quality management for all throughout the San Diego Region.</p>	

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D1-1	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>The requested changes to Provision D.1.e were not incorporated because the existing language is appropriate.</p> <p>Provision D.2.c.(2) has been revised to require wet weather MS4 outfall monitoring be conducted at least once per year after the Water Quality Improvement Plans are accepted, with a requirement that Copermittees may need to increase the frequency of monitoring in order to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. During the transitional monitoring period, the Copermittees are still required to conduct wet weather MS4 outfall monitoring twice per year. Additionally, the language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations.</p>	

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D1-2 PROVISION D.1: Receiving Water Monitoring Requirements		
	<p>COMMENT: <i>Requests for modifications to receiving water monitoring stations, frequency, and data collection requirements.</i></p> <p>Comments submitted by the Copermitees ranged from a broad request to remove the entire coastal storm drain monitoring program from the receiving water monitoring requirements (San Diego County), adding an alternate compliance option in lieu of the receiving waters monitoring program previously adopted in their current permit (Orange County), to very specific additions to what is recorded during receiving water station field observations (Riverside County).</p> <p>Multiple Environmental Organizations supported the need to increase the amount of monitoring in order to 1) better inform the Copermitees of the nexus between the health of receiving waters and the water quality condition of their discharge, 2) be sufficient to fulfill the San Diego Water Board's need to assess compliance, and 3) be sufficient to fulfill the public's need to stay informed.</p> <p>The USEPA commented on the need for the receiving water requirements to include minimum monitoring frequencies and a minimum number of station locations to measure compliance with the WLAs and associated water quality based effluent limitations of the TMDLs in the Order.</p> <p>The Los Penasquitos Lagoon Foundation requested continuous flow monitoring at the base of tributaries to 303(d) listed water bodies and monitoring of groundwater seepages into 303(d) listed water bodies be added to the monitoring requirements of the Watershed Management Area including the Los Penasquitos Lagoon.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p> <p>Environmental Organizations CERF, EHC, SDCK Los Penasquitos Lagoon Foundation</p> <p>State / Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to discontinue the coastal storm drain monitoring program and has replaced it with the receiving water monitoring program of Provision D.1 along with the transitional outfall monitoring screening and post-transitional outfall monitoring program (Provision D.2).</p> <p>The San Diego Water Board disagrees with the requested changes to the field screening observations required in Tables D-1 and D-6. The requests included adding the requirement to record any observed connectivity between MS4 outfall discharges and flowing receiving waters during receiving water and outfall field screening efforts. This was not added to the required observations listed in Tables D-1 or D-6 because the observations are already required as part of the illicit connection and illegal discharge requirements of Provision E.2.</p> <p>Pursuant to Provision D.1.f Alternative Watershed Monitoring Requirements, the San Diego Water Board may</p>	

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D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>direct the Copermitees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine status and trends in receiving waters. This requirement calls attention to the San Diego Water Board's plan to involve the Copermitees in the development of regional monitoring and assessment programs. It further calls attention to the San Diego Waters Board's position that a regional monitoring and assessment program must include other regulated entities in addition to the Phase I Copermitees. The Draft Framework for Monitoring and Assessment in the San Diego Region lays out the San Diego Water Board's framework to develop a regional receiving water monitoring program. Prior to development and required implementation of a regional receiving water monitoring program, and to maintain historical water quality monitoring trends, the requirements of Provision D.1.a-f require Copermitees to continue the receiving water monitoring required by their current storm water permits until coverage under the Tentative Order commences, and the Water Quality Improvement Plans are accepted.</p> <p>The monitoring program in Provision D has been modified to include minimums (removing the language "as appropriate"). Required monitoring minimums also address concerns regarding the Copermitees' and the San Diego Water Board's ability to determine compliance with the requirements of the Tentative Order (including TMDLs). Additionally, the Water Quality Improvement Plan development process has been significantly changed to include more public participation.</p> <p>Furthermore, the Tentative Order recognizes that each Copermitee should evaluate the need to increase its monitoring above what is minimally required to the appropriate level necessary to achieve the goals of the Water Quality Improvement Plan. Within the process for a Copermitee to get a Water Quality Improvement Plan developed and accepted by the San Diego Water Board, the Environmental Organizations and the public at large will have opportunities to contribute their expertise and provide comments on the nature and extent of monitoring needed to measure progress towards achieving the goals of the Water Quality Improvement Plans.</p> <p>Each Copermitee must establish a public participation process to solicit data, information, and recommendations to be utilized in the development of the Water Quality Improvement Plan. The Tentative Order also requires the Copermitees to form a Water Quality Improvement Consultation Panel (Panel) to provide recommendations on the priorities, goals, and strategies of the Water Quality Improvement Plan. The Panel must include a member of the environmental community, a member of the development community, and a member of the San Diego Water Board staff. Any recommendations for monitoring specific to a particular Watershed Management Area, receiving water body, pollutant, or stressor could be provided by the Panel and</p>	

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D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	<p>addressed in the Water Quality Improvement Plan.</p> <p>The minimum monitoring required plus the monitoring needed to attain goals established in the Water Quality Improvement Plans will be sufficient to inform the Copermittees, the San Diego Water Board, the environmental groups, and the public on the nexus between the health of receiving waters and the water quality condition of the discharges, compliance with TMDLs, and progress towards achieving the goals of the Clean Water Act.</p>	

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D1-3 PROVISION D.1: Receiving Water Monitoring Requirements		
	<p>COMMENT: <i>Require Test of Significant Toxicity to be consistent with other recent MS4 permits.</i></p> <p>The USEPA commented that the toxicity monitoring requirements should be modified and to be consistent with the requirements in MS4 permits recently issued by the State Water Resources Control Board (Caltrans MS4 Permit) and the Los Angeles Regional Water Quality Control Board (Los Angeles County MS4 Permit).</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees that the toxicity testing and data analysis requirements in the Tentative Orders should be consistent with other recently adopted MS4 Permits.</p> <p>The recently adopted Caltrans and Los Angeles County MS4 Permits include updated toxicity data collection procedures and data analysis methods that are consistent with the Draft State Water Resources Control Board Policy for Toxicity Assessment and Control, June 2012 (Draft State Board Toxicity Policy). Provision D has been updated to remove the acute toxicity test requirements, and only require chronic toxicity test biological endpoint data be analyzed using the Test of Significant Toxicity t-test approach specified in National Pollutant Discharge Elimination System Test of Significant Toxicity Document (USEPA, EPA 833-R-10-003, 2010), and other minor changes to make the Tentative Order consistent with recently adopted MS4 permits.</p>	

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D2-1 PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	<p>COMMENT: <i>Requests for "clarifications" of MS4 outfall discharge monitoring requirements.</i></p> <p>The San Diego County and Riverside County Copermittees requested the dry weather MS4 outfall field screening language in Provision D.2.a.(2) be modified to clarify the number of visual inspections at major outfall locations required per jurisdiction per Watershed Management Area. The Riverside County Copermittees additionally requested that the field screening only apply to those MS4 outfalls in a Copermittee's inventory that are 'accessible,' and clarification to the definition of persistent flow.</p> <p>USEPA supports the Copermittees' comments to improve clarity with respect to identification of MS4 outfall monitoring locations. USEPA further requested language specific enough to assure MS4 outfall monitoring locations are selected to include compliance points for the TMDLs in Attachment E.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally agrees with comments from the Copermittees and USEPA.</p> <p>Additional language has been added to improve the clarity of Provision D.2.a.(2) for those jurisdictions with equal to or greater than 500 major MS4 outfalls within their inventory that are located within multiple Watershed Management Areas. The San Diego Water Board specifically retained language to allow for the Copermittees to conduct more than the minimum amount of visual inspections of their major MS4 outfalls should increased inspections be a part of the strategies specified to meet the goals of any Water Quality Improvement Plan.</p> <p>The San Diego Water Board disagrees with the comments requesting modifications to the persistent flow definition in Footnote 19. The San Diego Water Board maintains that the definition, as written, accomplishes the intent of the requested revision and does not need to be explicitly stated. Existing language in Provision D.2.a.(1)(e) addresses the comment about field screening "accessible" inventoried MS4 outfalls. The Copermittees can field screen an MS4 outfall location by screening a manhole just upgradient of the discharge where access is safe.</p> <p>Provisions D.2.b.(2)(b)(i) and D.2.c.(1) were modified to require additional outfall monitoring locations if the 5 chosen MS4 outfall locations were not sufficient to determine compliance with the TMDLs in the Tentative Order.</p>

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D2-2 PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements		
D2-2	<p>COMMENT: <i>Requests for modifications to MS4 outfall monitoring stations, frequency, and data collection requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each requested modifications to the MS4 outfall monitoring stations, frequency, and data collection requirements.</p> <p>The San Diego County Copermittees requested the MS4 outfall discharge monitoring requirements be changed for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees become covered under the Tentative Order, a reduction to the frequency of outfall sampling during the transitional period from annually to once per 2-year transitional period, a modification to the requirement to sample the 'first flush' during wet weather, a reduction to the number of dry weather outfall monitoring locations from 10 to 5, and an allowance for analytical testing to be reduced if demonstrated by supporting data.</p> <p>The Orange County and Riverside County Copermittees supported most of San Diego County Copermittees' requested revisions. Additionally, the Riverside County Copermittees commented on the disproportionality of the persistent flow MS4 outfall monitoring requirements, and the need to de-emphasize MS outfall monitoring locations if the discharge does not reach a receiving water due to infiltration, evaporation, or treatment.</p> <p>Environmental Organizations supported the need to increase the amount of monitoring in order to better inform the Copermittees of the nexus between the health of receiving waters and the water quality condition of their discharge, be sufficient to fulfill the San Diego Water Board's need to assess compliance, and be sufficient to fulfill the public's need to stay informed.</p> <p>The USEPA commented on the need for the MS4 outfall monitoring requirements to include minimum monitoring frequencies and a minimum number of MS4 outfall locations to measure compliance with the TMDLs.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations CERF, EHC, SDCK</p> <p>State / Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agreed with several of the requested modifications. Revisions to Provision D.2 were made where appropriate.</p> <p>The requirement to monitor at least 10 major outfalls was reduced to monitoring at least 5 major outfalls with persistent flows. To address comments from the USEPA, this requirement was also modified to require additional MS4 outfall monitoring locations, if the 5 chosen outfall locations were not sufficient to determine compliance with the TMDLs. If a smaller jurisdiction has less than 5 major MS4 outfalls with persistent flow,</p>	

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D2-2	PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	<p>they would be required to monitor all the MS4 outfalls with persistent flow until such time that they identify and terminate the discharge or met another criteria of Provision D.2.(2)(b)(ii). If any Copermittee eliminates all persistent flows from all of its MS4 outfalls, they would not be required to conduct dry weather MS4 outfall monitoring.</p> <p>The San Diego Water Board accepted most of the requested revisions from the Orange County Copermittees, except those concerning toxicity sampling and coliform sampling. Toxicity sampling was modified in response to comments provided by USEPA to make the toxicity requirements more consistent with recently adopted MS4 permits (i.e. Caltrans and Los Angeles County MS4 Permits). Please see the response to comment D1-3.</p>	

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D3-1 PROVISION D.3: Special Studies	
	<p>COMMENT: <i>Request to reduce the number of special studies required.</i></p> <p>The San Diego County Copermitees submitted a comment requesting a reduction in the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region to account for the time and resources required to plan and develop the special studies, and integrate the plans for the special studies into the monitoring and assessment programs of the Water Quality Improvement Plans. This comment was supported by the Riverside County Copermitees.</p>
	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>Provision D.3 has been modified to reduce the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region.</p>

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D3-2 PROVISION D.3: Special Studies	
<p>COMMENT: <i>Allow special studies initiated prior to the term of the Tentative Order to count toward the required special studies.</i></p> <p>The San Diego County Copermitees submitted a comment requesting that the special studies initiated prior to the term of the Tentative Order be allowed to count towards the special studies required in Provision D.3, citing that special studies are typically multi-year efforts that require multi-stage planning, funding approval/allocation, and analysis. This comment was supported by the Riverside County Copermitees.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>Provision D.3 has been modified to allow the use of special studies initiate prior to adoption of the Tentative Order to comply with the requirements of Provision D.3.</p>	

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D4-1 PROVISION D.4: Assessment Requirements	
<p>COMMENT: <i>Requests for "clarifications" of assessment requirements.</i></p> <p>The San Diego County and Riverside County Copermittees submitted comments requesting clarifications be made to the assessment requirements of Provisions D.4.b.(1)-(2). The Copermittees concurred that the timing of reporting be compatible with completion of the assessments. The Riverside County Copermittees requested specific revisions to Provision D.4.b.(1)(c)(iv) concerning extrapolation of calculated flow volumes and pollutant loads; and assessment of jurisdictional accountability.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>The San Diego Water Board modified Provision D.4.b.(1)(a) to add an annual assessment of data collected during the transition period and reporting as part of the Transitional Monitoring and Assessment Program Annual Report (Provision F.3.b.2). Provision D.4.b.(2)(a) requires assessment of MS4 outfall data collected after the transitional period and reporting as part of the Water Quality Improvement Plan Annual Report (Provision F.3.b.(3)). Requiring an annual report during the transitional years before the acceptance of the Water Quality Improvement Plan will allow Copermittees to perform 'complete' assessments and report on the progress for that year, whether it be a year within the transitional monitoring period or a year in which monitoring is conducted in accordance with the Water Quality Improvement Plan.</p> <p>Provisions D.4.b.(2)(c)(iv)[a]-[b] were modified to address comments concerning extrapolation of calculated flow volume and pollutant loads to outfalls that were not actually monitored. The assessment now requires the use of a model or other method to calculate or estimate the non-storm water volumes and pollutant loads collectively discharged from all the major MS4 outfalls in its jurisdiction identified as having persistent dry weather flows. To address the issue of jurisdictional accountability, the Copermittees are now required to identify and quantify (i.e. volume and pollutant loads) sources of non-storm water not subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters.</p> <p>The San Diego Water Board generally disagrees with the comment to require calculation of pollutant loads only for those priority water quality constituents identified in the Water Quality Improvement Plan. Calculation of all pollutant loads are required until a Copermittee collects sufficient data or other supporting information pursuant to Provision D.2.b.(2)(e)(iii)[e] to demonstrate analysis of a constituent is not necessary.</p>	

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D4-1	PROVISION D.4: Assessment Requirements
	<p>The San Diego Water Board agrees with the comment that MS4 outfall assessments are to be done for the area covered by each Copermittee and that the data to be used by each Copermittee would include the data collected from any Flood Control District MS4 operated within its jurisdiction. The San Diego Water Board has not modified any language within Provision D.4 to address this comment because the language adequately addresses the comment without further modifications.</p>

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D4-2 PROVISION D.4: Assessment Requirements	
	<p>COMMENT: <i>Requests for modifications to assessment requirements.</i></p> <p>The San Diego County Copermittees commented on the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather. The Copermittees further commented on the need to modify the requirements to calculate jurisdictional loads during wet weather, as well as modifications to clarify assessments necessary to track jurisdictional accountability.</p> <p>The Riverside County Copermittees agreed in large part with the comments provided by the San Diego County Copermittees. The Riverside County Copermittees also expressed a desire to clarify MS4 outfall assessments are to be done by each municipal Copermittee and that the data to be used by each municipal Copermittee include the data collected from any flood control district within its jurisdiction. Additionally, the Riverside County Copermittees expressed concern that the assessment requirements were requiring evaluations beyond their expertise and suggested pollutant loads only be calculated for priority pollutants.</p> <p>The Los Penasquitos Lagoon Foundation requested that the Tentative Order require the Copermittees to work with local land managers to assess the status and trends of receiving water quality conditions.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board generally agreed with the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather and the need to modify the requirements to calculate jurisdictional loads during wet weather to the added area-based jurisdictional computational approach.</p> <p>The San Diego Water Board generally modified the Tentative Order where there was agreement with the comments. The San Diego Water Board, however, disagrees with the requests regarding MS4 outfall assessments for flood control districts, assessment requirements related to critical receiving water beneficial uses, and the suggestion that pollutant loads only be calculated for priority pollutants.</p> <p>The San Diego Water Board agrees with the comments provided by the Los Penasquitos Lagoon Foundation and required increased public participation and formation of a Water Quality Improvement Plan Consultation Panel in Provision F.1.a.</p>

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E-1 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
<p>COMMENT: <i>Align the Jurisdictional Runoff Management Program requirements with the Water Quality Improvement Plan requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermittees assert that the requirements of Provision E are a “one size fits all” set of requirements, and the requirements of the Water Quality Improvement Plan become “additive” rather than “complimentary.” Several Copermittees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept.</p> <p>The Environmental Groups submitted comments expressing concern with the flexibility of the jurisdictional runoff management program requirements and requested that the Water Quality Improvement Plan include a detailed list of activities and what activities each Copermittee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermittees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermittee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermittee.</p> <p>The USEPA is also concerned with the flexibility that is provided by the requirements of Provision E. The USEPA prefers jurisdictional runoff management program requirements that include specific inspection frequencies.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermittee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
	<p>The San Diego Water Board has revised Provision B.3.b in the revised Tentative Order (formerly Provision B.3.a in the Tentative Order) to require the Copermittees to specify which water quality improvement strategies each Copermittee will commit to implementing within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7, and the optional water quality improvement strategies that will be implemented by the Copermittee within its jurisdiction when necessary to achieve the numeric goals. The optional water quality improvement strategies are to be implemented by the Copermittee as necessary to contribute toward achieving the numeric goals. Provision B.3.b in the revised Tentative Order also includes requirements for the Copermittees to identify optional Watershed Management Area strategies that the Copermittees will implement when necessary to achieve the numeric goals.</p> <p>Each Copermittee must specify BMPs, education programs, inspection frequencies, incentive and enforcement programs that will be implemented within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7. Provisions E.2.e, E.3.g, E.4.f, E.5.e.(1), and E.7.c were removed in the revised Tentative Order, and the introductory paragraphs of Provisions E.2-E.7 were revised to state that each component must be implemented in accordance with the jurisdictional strategies identified in the Water Quality Improvement Plan. These revisions were made to better align the requirements of the Water Quality Improvement Plans and the jurisdictional runoff management programs, and provide an additional layer of transparency to the public for the strategies that the Copermittees will be committing to implement versus those strategies that will be implemented only when necessary to achieve the numeric goals.</p> <p>The San Diego Water Board has not modified the inspection frequency requirements in Provisions E.2-E.7. The inspection frequency requirements provide a sufficient level of guidance and flexibility for allowing the Copermittees to develop appropriate inspection frequencies that will be committed to in the Water Quality Improvement Plans, and a minimum level of effort that is expected for areas associated with the highest priority water quality conditions. The inspection frequencies that the Copermittees commit to implementing as part of the Water Quality Improvement Plans will be utilized by the San Diego Water Board during its audits of the Copermittees' programs to determine compliance with the requirements of the Tentative Order.</p>	

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E-2 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
<p>COMMENT: <i>Allow San Diego County to use the Watershed Urban Runoff Management Plan (WURMP) to guide its jurisdictional runoff management program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.</i></p> <p>The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan and implementation of the requirements of Provision E for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered under the Tentative Order.</p>	<p>Copermittees County of San Diego San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The second introductory paragraph of Provision E states, “<i>Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.</i>” The County of San Diego will continue to implement the jurisdictional runoff management program requirements of Order No. R9-2007-0001 until the Riverside County Copermittees are notified of coverage under the Order and a Water Quality Improvement Plan is developed pursuant to the requirements of this Order. The County of San Diego may use its WURMP for the Santa Margarita River Watershed to guide its jurisdictional runoff management program until the Water Quality Improvement Plan is developed and accepted.</p> <p>Please also see the response to comment B1-1.</p>	

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E1-1 PROVISION E.1: Legal Authority Establishment and Enforcement	
<p>COMMENT: <i>Specify that the legal authority established by the Copermittees only applies to the Copermittees' jurisdictions.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of Provision E.1 be modified to specify that the legal authority established by the Copermittees only apply "to the extent allowable by law" and only applies to discharges within their jurisdiction. The Julian Community Planning Group also commented that there are jurisdictions that a Copermittee has no authority to require compliance.</p>	<p>Community Planning Groups Julian Community Planning Group</p> <p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to specify that the legal authority established by the Copermittees is only applicable to their jurisdictions.</p> <p>The requirements of Provision E.1 are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The legal authority that each Copermittee is required to establish for its jurisdiction is logically only expected to apply to its jurisdiction.</p> <p>Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermittee to "Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity." 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Even if there are industrial and construction sites regulated by the Statewide Industrial or Construction General Permits, those sites are still subject to the Copermittees ordinances and the Copermittee must have the legal authority to control discharges from those sites.</p> <p>Provisions E.1.a.(4) is consistent with 40CFR122.26(d)(2)(i)(D), which requires the Copermittee to "Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system." The federal regulations require the Copermittees to enter into interagency agreements to control pollutants from one Copermittee's jurisdiction to another Copermittee's jurisdiction. Provision E.1.a.(4) does not require anything outside of the federal requirements.</p>	

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E1-1	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>Provision E.1.a.(5) is consistent with the requirements in the Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016. The Copermittees should be working with other entities outside of their jurisdiction to reduce or eliminate pollutants being discharged into their jurisdictions and MS4s, especially if those are significant sources of pollutants. The “where possible” qualifier in the requirement gives the Copermittees some flexibility in working with other entities, but Provision E.1.a.(5) does not require the Copermittees to impose their legal authority upon entities outside their jurisdictions.</p> <p>Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to “<i>Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.</i>”</p> <p>The San Diego Water Board did not make revisions to the requirements of Provision E.1 requested by the Copermittees.</p>	

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E1-2 PROVISION E.1: Legal Authority Establishment and Enforcement	
<p>COMMENT: <i>Requests for "clarifications" for legal authority requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting several "clarification" to requirements of Provision E.1.a to be "consistent" with the requirements under 40CFR122.26(d)(2)(i)(A)-(F).</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that the legal authority requirements under Provision E.1.a are not consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F).</p> <p>The requirements of Provision E.1.a are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The requirements under 40CFR122.26(d)(2)(i)(A)-(F) apply to both non-storm water discharges <i>to</i> the MS4 and pollutants in storm water discharges <i>from</i> the MS4.</p> <p>Provision E.1.a.(1) is consistent with 40CFR122.26(d)(2)(i)(B), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer.</i>" The requirement under 40CFR122.26(d)(2)(i)(B) does not include the term "effectively prohibit" only "prohibit" illicit discharges to the MS4.</p> <p>Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.</i>" The requirement under 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not.</p> <p>Provision E.1.a.(3) is consistent with 40CFR122.26(d)(2)(i)(C), which requires the Copermittee to "[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] <i>Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water.</i>"</p>	

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E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>Provisions E.1.a.(6)-(9) are consistent with 40CFR122.26(d)(2)(i)(E), which requires the Copermittee to “[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] Require compliance with conditions in ordinances, permits, contracts or orders.” Provisions E.1.a.(6)-(9) provide more specificity about what “compliance with conditions in ordinances, permits, contracts or orders” includes.</p> <p>Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to “[operate pursuant to legal authority established...which authorizes or enables the applicant at a minimum to...] Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”</p> <p>The San Diego Water Board did not make revisions to the requirements of Provision E.1.a requested by the Copermittees.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination	
E2-1	<p>COMMENT: <i>Non-storm water discharges must be addressed because of the impacts dry weather flows have on receiving waters.</i></p> <p>The Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters.</p> <p>The Los Penasquitos Lagoon Foundation requested that the Tentative Order provide mechanisms to allow the Copermittees to address dry weather flows regardless of whether or not constituents of concern are present in the flows. The South Laguna Civic Association advocated for effective enforcement measures by the San Diego Water Board to reduce discharges generated by over-irrigation.</p>
	<p>Environmental Organizations Los Penasquitos Lagoon Foundation South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that non-storm water discharges must be addressed.</p> <p>The approach to regulating non-storm water discharges in the Tentative Order has been modified compared to earlier permits. The Tentative Order focuses on “effectively prohibiting” or preventing and eliminating all non-NPDES-permitted non-storm water discharges to the MS4. The Tentative Order also requires the Copermittees to prohibit non-storm discharges associated with over-irrigation to the MS4. These two changes are expected to result in more actions implemented by the Copermittees to “effectively prohibit” non-storm water discharges to the MS4s and thereby non-storm water and pollutants from the MS4s to receiving waters.</p> <p>The San Diego Water Board agrees that the San Diego Water Board must enforce permit requirements more effectively. By issuing the Tentative Order, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements. However, the San Diego Water Board also expects the public to provide data, information and evidence that will allow the San Diego Water Board to enforce the requirements of the Tentative Order.</p>

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E2-2 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Requests for "clarifications" of illicit discharge detection and elimination requirements.</i></p> <p>The Riverside County and San Diego County Copermittees, the Industrial Environmental Association, the BIA Regulated Community Coalition, and the Los Penasquitos Lagoon Foundation each submitted comment letters recommending minor revisions to the language under Provision E.2 to "clarify" the requirements, or to be consistent the comments regarding non-storm water discharges (see comment Gnl-13).</p>	<p>Building Industry / Industry Industrial Environmental Association BIA Regulated Community Coalition</p> <p>Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requests for minor revisions to "clarify" the requirements under Provision E.2.</p> <p>Where the San Diego Water Board determined a revision requested by a commenter was appropriate and necessary to clarify a requirement, clarify a linkage to another requirement, or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision under Provision E.2. In many cases, the requested revision was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not revise the language as requested.</p> <p>Please see Provision E.2 in the revised Tentative Order to see where revisions were made. Please also see the responses to the comments that follow, associated with Provision E.2, for revisions that were made for specific parts under Provision E.2.</p>	

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E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	<p>COMMENT: <i>Requests to more clearly define the responsibility of each Copermittee to address sources non-storm water discharges originating outside of a Copermittee's jurisdiction or control.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting modifications to the language under Provisions E.2.b and E.2.d to better define or more clearly define the responsibilities of each Copermittee to address sources of non-storm water discharges originating outside of a Copermittee's jurisdiction or control.</p> <p>The San Diego County Copermittees requested a minor revision to Provision E.2.b.(6) changing "must" to "shall." The San Diego County Copermittees also requested a minor revision to Provision E.2.d.(1)(d) to include a consideration for natural sources in its prioritization of investigations. The Riverside County Copermittees did not include the comments in their comment letter, but did include similar revisions in a track changes version of the Tentative Order provided with their comments.</p> <p>The Riverside County Copermittees requested additions to Provision E.2.d.(3) to specify that a Copermittee is no longer responsible for eliminating a non-storm water discharge to its jurisdiction if the source is in an upstream jurisdiction, and allowing the Copermittee to charge the San Diego Water Board for identifying non-storm water discharges subject to the regulatory authority of the San Diego Water Board.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>Revision of Provision E.2.b.(6) to change "must" to "shall" is unnecessary. In either case, the San Diego Water Board would interpret the language as the Copermittee is required to implement Provision E.2.b.(6).</p> <p>Revision of Provision E.2.d.(1)(d) is unnecessary. Provisions E.2.d.(1)(a)-(e) are the criteria that the Copermittee must consider in its prioritization of follow-up investigations. Nothing in Provisions E.2.d.(1)(a)-(e) prohibit the Copermittee from considering natural sources as part of its prioritization of follow-up investigations.</p> <p>The recommended revisions to Provision E.2.d.(3) are not necessary or appropriate. Provision E.2.b.(6) already requires the Copermittee to coordinate with upstream Copermittees to prevent illicit discharges to the MS4 within its jurisdiction. In addition, Provision E.1.a.(4) requires the Copermittee to "<i>Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.</i>" The federal regulations require the Copermittees to enter into</p>	

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E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	<p>interagency agreements to control pollutants from one Copermittee's jurisdiction to another Copermittee's jurisdiction.</p> <p>The request to allow a Copermittee to charge the San Diego Water Board for implementing an investigation of non-storm water discharges to its MS4 is inappropriate. Each Copermittee is required to effectively prohibit non-storm water discharges to their MS4s by enforcing its legal authority, unless a non-storm water discharge is authorized under an NPDES permit. If a non-storm water discharge originates from a source that is subject to the San Diego Water Board's authority and requires an NPDES permit, then the Copermittee is still responsible for identifying the source if it is resulting in a non-storm water discharge into and from the Copermittee's MS4.</p> <p>If the non-storm water discharge is not authorized under an NPDES permit, then it is an illicit discharge. The Copermittee must either eliminate the illicit discharge or require the discharger to obtain authorization from the San Diego Water Board under an NPDES permit. If a non-storm water discharge to the Copermittee's MS4 is an NPDES permitted discharge, then the Copermittee is responsible for demonstrating that the non-storm water discharge is not an illicit discharge by identifying the source as an NPDES permitted discharge. The Copermittee must provide the data and documentation to demonstrate that non-storm water discharges from its MS4 are authorized under separate NPDES requirements. Until the Copermittee demonstrates that a non-storm water discharge is an NPDES-permitted discharge, the Copermittee is responsible for the non-storm water discharge. The non-storm water source investigation and identification are part of the Copermittee's responsibility to demonstrate compliance with the requirements in the Tentative Order.</p> <p>The San Diego Water Board did not revise Provisions E.2.b or E.2.d.</p>	

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E2a-1 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Request to allow the Copermitees to "encourage" instead of "require" air conditioning condensate non-storm water discharges be directed to landscaped areas or other impervious surfaces.</i></p> <p>The City of National City, the San Diego County Copermitees, the San Diego Unified Port District, and the San Diego Port Tenants Association each submitted comments expressing concerns with requiring air conditioning condensate non-storm water discharges to be directed to landscaped areas or other permeable surfaces, if feasible.</p> <p>The City of National City, the San Diego County Copermitees, and the San Diego Unified Port District requested the language of Provision E.2.a.(4)(a) be revised to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego County Copermitees also requested the addition of "or to the sanitary sewer" at the end of the requirement. The City of National City opposed this addition.</p> <p>The San Diego Port Tenants Association requested that the requirement be limited to development or re-development projects.</p>	<p>Copermitees City of National City San Diego County Copermitees San Diego Unified Port District</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
<p>RESPONSE: The San Diego Water Board agrees to revise the requirements to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego Water Board also agrees to add "to the sanitary sewer" as an additional option.</p> <p>The San Diego Water Board disagrees with limiting the requirement to development or re-development projects. Air conditioning condensate non-storm water discharges originate primarily from existing development, and the Clean Water Act requires the Copermitees to effectively prohibit non-storm water discharges to the MS4.</p> <p>Please see Provision E.2.a.(4)(a) in the revised Tentative Order to see the revisions.</p>	

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March 27, 2013

E2a-2 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Requests for modifications to requirements of fire-fighting non-storm water discharges.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirement to encourage the implementation of BMPs for emergency firefighting discharges and/or the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges. The County of San Diego and San Diego County Fire Authority also objected to the requirement to encourage implementation of BMPs for emergency firefighting discharges. San Diego Gas and Electric, the Southern California Gas Company, and the San Diego Port Tenants Association also objected to the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges.</p> <p>The Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(5)(b) and specifying that emergency firefighting non-storm water discharges do not require BMPs and are not prohibited. The San Diego County Fire Authority recommended maintaining the existing requirements in Order No. R9-2007-0001, which is supported by the County of San Diego.</p> <p>The San Diego County Copermittees recommended revising Provision E.2.a.(5)(a)(i) to require the Copermittees to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges “unless BMPs are implemented to prevent the discharge of pollutants to the MS4.” The Riverside County Copermittees, County of San Diego, San Diego County Fire Authority, San Diego Gas and Electric, Southern California Gas Company, and San Diego Port Tenants Association supported the recommendation. The Orange County Copermittees did not provide a similar comment, but recommended that other non-emergency firefighting discharges be addressed by a program developed and implemented by the Copermittee “in conjunction with the local Fire Authority/District.”</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego County Fire Authority</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
<p>RESPONSE: The San Diego Water Board has review and considered the recommendations from the commenters.</p> <p>The San Diego Water Board disagrees that the language in Provision E.2.a.(5)(b) requires the implementation of BMPs for emergency fire fighting discharges, or prohibits emergency fire fighting discharges to the MS4. Provision E.2.a.(5)(b) only requires the Copermittees to “encourage” the implementation of BMPs. Provision E.2.a.(5)(b) is a recommendation for the Copermittees to implement, not a requirement for compliance.</p>	

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E2a-2	PROVISION E.2.a: Non-Storm Water Discharges
	<p>The San Diego Water Board agrees to the recommended revision to Provision E.2.a.(5)(a)(i). The San Diego Water Board does not agree that the recommended revision to Provision E.2.a.(5)(a)(ii) is necessary. The Copermitees would have to develop and implement the program to address non-emergency fire fighting discharges in conjunction or coordination with the local fire authority or fire district.</p> <p>Please see Provision E.2.a.(5) in the revised Tentative Order to see the revisions.</p>

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E2a-3	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: Clarify that non-storm water discharges authorized by a separate NPDES permit are authorized to be discharged to the MS4.</p> <p>The San Diego Port Tenants Association, San Diego Gas and Electric, and the Southern California Gas Company each submitted comments requesting language in the Tentative Order to specify that non-storm water discharges authorized by separate NPDES permits are authorized to discharge to the MS4.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revision to the language in the Tentative Order are necessary or appropriate.</p> <p>Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4. Provision A.1.b also specifies that the Copermittees are required to effectively prohibit non-storm water discharges to the MS4 <i>unless</i> such discharges are authorized by a separate NPDES permit.</p> <p>The San Diego Water Board did not revise the Tentative Order to include additional language.</p>	

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E2a-4 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objections to addressing non-storm water discharges related to extraction of groundwater as illicit discharges.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirements to address non-storm water discharges related to extraction of groundwater as illicit discharges if they are not identified as sources of pollutants. The City of National City also submitted a comment with a similar objection. The Copermittees also objected to requiring non-storm water discharges related to extraction of groundwater to be enrolled under the General Groundwater Extraction NPDES Permits issued by the San Diego Water Board.</p> <p>The Copermittees recommended several revisions to Provisions E.2.a.(1) and E.2.a.(3) to modify, remove, and/or reorganize the requirements pertaining to non-storm water discharges related to groundwater extraction.</p>	<p>Copermittees City of National City Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the recommendations.</p> <p>The Clean Water Act requires NPDES permit for MS4s to effectively prohibit non-storm water discharges to the MS4. As explained in the Fact Sheet, the Phase I Final Rule clarifies that non-storm water discharges through an MS4 are not authorized under the CWA (55 FR 47995): <i>“Today’s rule defines the term “illicit discharge” to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to “effectively prohibit” non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit.”</i></p> <p>Thus, all non-storm water discharges that do not have authorization under an NPDES permit must ultimately be removed (i.e. prevented or eliminated) from the MS4 or become subject to an NPDES permit.</p> <p>The requirements under Provisions E.2.a.(1) and E.2.a.(3) are consistent with the Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. The non-storm water categories listed under Provision E.2.a.(1) can be authorized by an NPDES permit because they are extracting groundwater for the purpose of dewatering, and the San Diego Water Board has two NPDES permits that can authorize these types of non-storm water discharges. These are not “conditionally exempt”</p>	

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E2a-4	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>non-storm water discharges as the Copermittees have asserted. If there are non-storm water discharges that result from groundwater extraction for dewatering and do not have authorization under an NPDES permit, the discharge is an illicit discharge.</p> <p>The non-storm water categories listed under Provision E.2.a.(3) generally are expected to be discharged from natural, uncontrollable, or unanticipated sources. Non-storm water discharges from foundation drains and footing drains designed to be above the groundwater table are not generally expected to occur. If they do occur, the Copermittee is expected to implement its illicit discharge detection and elimination program to determine if the discharge is transient or persistent, a source of pollutants or not, and whether the discharge must be eliminated in accordance with its priorities.</p> <p>In general, the requirements under Provision E.2 are focused on the ultimate removal of unauthorized non-storm water discharges to the MS4 to “effectively prohibit” non-storm water discharges to the MS4, as required by the Clean Water Act. The San Diego Water Board is not requiring the Copermittee to enforce any NPDES permits issued by the San Diego Water Board or State Water Board. The Copermittees are only required to enforce their legal authority to prohibit illicit discharges to their MS4s established pursuant to Provision E.1.a.(1).</p> <p>The San Diego Water Board did not revise Provisions E.2.a.(1) or E.2.a.(3).</p>	

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E2a-5 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: Request to allow the Copermittees to focus on elimination of "non-storm water discharges that are a source of pollutants" not "non-storm water discharges."</p> <p>The Orange County and Riverside County Copermittees each requested that the requirements under Provision E.2.a be revised to allow the Copermittees to focus on eliminating non-storm water discharges that are a source of pollutants and not require the elimination of all non-storm water discharges.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees' request. Provision E.2 does provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. However, the Copermittees are required to prioritize the non-storm water discharges that they will address, and eliminate the highest priority non-storm water discharges first.</p> <p>Please see the response to comment E2a-4.</p>	

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E2a-6	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Request to allow the Copermitees to encourage the control of residential car washing non-storm water discharges through public education.</i></p> <p>The San Diego County Copermitees submitted a comment requesting the requirements of Provision E.2.a.(4)(b) be revised to allow the Copermitees to encourage the control of residential car washing non-storm water discharges through public education.</p>	<p>Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revisions.</p> <p>The San Diego Water Board did not revise Provision E.2.a.(4)(b) as requested, but did make revisions to provide the flexibility to encourage the control of residential car washing non-storm water discharges through public education.</p>	

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E2a-7 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: Request for modification to requirements for swimming pool non-storm water discharges.</p> <p>The San Diego County Copermittees requested a minor modification to Provision E.2.a.(4)(c) to add the phrase “should be managed as to:” for the non-storm water discharge requirements related to dechlorinated swimming pool discharges.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revision.</p> <p>The revision to Provision E.2.a.(4)(c) does not provide any additional clarify and is not necessary. The San Diego Water Board did not revise Provision E.2.a.(4)(c) as requested.</p>	

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E2a-8 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objections to requiring the prohibition of over-irrigation non-storm water discharges.</i></p> <p>The Riverside County Copermittees and the County of San Diego each submitted comments objecting to eliminating the non-storm water discharge categories associated with over-irrigation, which results in requiring the Copermittees to prohibit over-irrigation non-storm water discharges to the Copermittees' MS4s. The Copermittees requested that the non-storm water discharge categories associated with over-irrigation be put back into Provision E.2.a.</p> <p>In contrast, the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows associated with over-irrigation. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters.</p>	<p>Copermittees County of San Diego Riverside County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation South Laguna Civic Association</p>
<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees' request.</p> <p>The Riverside County Copermittees assert that the Copermittees must identify the categories that are sources of pollutants that should be prohibited, not the San Diego Water Board. The San Diego Water Board disagrees. This is the responsibility of both the San Diego Water Board and/or the discharger. Either the San Diego Water Board or the discharger may identify categories that should be prohibited. The Phase I Rule (55 FR 48037) specifies that "<i>the Director [i.e. San Diego Water Board] may include permit conditions that either require municipalities to prohibit or otherwise control any of these types of discharges where appropriate.</i>"</p> <p>In this case, the San Diego Water Board has identified non-storm water runoff from landscape irrigation, irrigation water, and lawn watering (collectively, "over-irrigation") as a significant source of pollutants discharging to the MS4. The Fact Sheet cites a number of documents, from the state and all three counties of the San Diego Region, to justify the removal of these categories from the list of categories of non-storm water discharges into the MS4 not required to be prohibited. The San Diego Water Board maintains that the documentation cited in the Fact Sheet supports that removal of these categories. However, the comments from the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association also support this conclusion.</p> <p>In addition, the removal of the non-storm water discharge categories associated with over-irrigation has already</p>	

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E2a-8	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>been adopted in the Orange County and Riverside County MS4 Permits (Order Nos. R9-2009-0002 and R9-2016-0016). The Riverside County Copermittees are already subject to the requirement to prohibit non-storm water discharge categories associated with over-irrigation, so the removal of these categories in the Tentative Order is consistent with their current requirements.</p> <p>Furthermore, the removal of the non-storm water discharge categories associated with over-irrigation is consistent with what is already required to be implemented by the Copermittees. The prohibition is consistent with the Water Conservation in Landscaping Act (AB1881), which required cities and counties to adopt landscape water conservation ordinances prohibiting runoff from inefficient landscape irrigation by January 1, 2010. The cities and counties were required to adopt ordinances that prohibit runoff from "the target landscape" to "adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures." The Copermittees should have already adopted these ordinances and are required to enforce these ordinances to prohibit runoff associated with over-irrigation.</p> <p>The San Diego Water Board did not revise Provision E.2.a to include the non-storm water discharge categories associated with over-irrigation.</p>	

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E2a-9 PROVISION E.2.a: Non-Storm Water Discharges	
<p>COMMENT: <i>Objection to requirement to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge.</i></p> <p>The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting the requirement under Provision E.2.a.(7) to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge. The San Diego County Copermittees recommended removing the phrase “whether or not the non-storm water discharge has been identified as an illicit discharge” and the Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(7).</p> <p>In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. The Los Penasquitos Lagoon Foundation noted that dry weather freshwater flows themselves can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats, especially when those flows have been changed from ephemeral to perennial.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Los Penasquitos Lagoon Foundation</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request to remove Provision E.2.a.(7), but agrees to modify the language.</p> <p>Provision E.2.a.(7) is consistent with Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. Please see response to comment E2a-4.</p> <p>The San Diego Water Board has revised Provision E.2.a.(7). Please see the revisions in the revised Tentative Order.</p>	

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E2a-10 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>Request for modifications to the requirements for water line flushing and water main breaks non-storm water discharges.</i></p> <p>The Metropolitan Water District of Southern California submitted a request to modify Provision E.2.a.(2) to specify that non-storm water discharges from water purveyors and community water systems are authorized discharges and not illicit discharge if enrolled or regulated under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003).</p>	<p>Other Entities Metropolitan Water District of Southern California</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>Provision E.2.a.(2) is specific to the requirement for the Copermittees to identify whether or not a non-storm water discharge resulting from water line flushing or water main breaks are illicit discharges. These are two non-storm water discharge categories specifically identified in the Code of Federal Regulations that the Copermittees are required to address as illicit discharges if they are identified as a source of pollutants.</p> <p>The introductory paragraph to Provision E.2.a already specifies that non-storm water discharges authorized by a separate NPDES permit is not required to be addressed as an illicit discharge. Provision E.2.a.(2) further specifies that water line flushing and water main breaks covered under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003) are not illicit discharges.</p> <p>The San Diego Water Board did not revise Provision E.2.a.(2).</p>	

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E2a-11 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>Request to allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be a source of pollutants instead of requiring a prohibition of the category of non-storm water discharges.</i></p> <p>San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting Provision E.2.a.(6) be modified to provide an alternative that would allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be source of pollutants, instead of requiring a prohibition of the category of non-storm water discharges.</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested revision.</p> <p>The San Diego Water Board has revised Provision E.2.a.(6) to allow the Copermittees to propose controls to be implemented if a category of non-storm water discharges is found to be a source of pollutants. Please see Provision E.2.a.(6) in the revised Tentative Order.</p>	

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E3-1 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>Requests for "clarifications" for development planning requirements.</i></p> <p>The Copermittees and others have submitted numerous recommendations for revisions to provide "clarity," improve readability, or correct the language in Provision E.3 of the Tentative Order.</p>	<p>Building Industry / Industry Building Industry Association of Southern California San Diego Green Building Council</p> <p>Copermittees City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board has reviewed and considered all the recommendations submitted by the commenters.</p> <p>In cases where the San Diego Water Board agreed that the recommendations would improve readability and were consistent with the intent of language or requirement, the recommendations were incorporated. In instances where the San Diego Water Board disagreed with the recommendations, the language in the Tentative Order was not changed.</p>	

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E3-2 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>Requests for revisions to allow the construction of BMPs in waters of the state.</i></p> <p>The San Diego County Copermittees and the BIA Regulated Community Coalition have requested that Provision E.3.a.(1)(b) be revised to allow the implementation of structural BMPs within waters of the state, since the definition of waters of the state is broad and could be interpreted to prohibit storm drain inserts and other common BMPs. The requested revision that “BMPs must not be constructed within a waters of the U.S. unless authorized by the San Diego Water Board Executive Officer” is consistent with the San Diego Water Board’s 401 Certification Program and would protect natural receiving waters from construction and the use of such waters to transport pollutants.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition Copermittees City of Chula Vista San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with this comment and has modified the language in the Tentative Order accordingly.</p>	

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E3-3 PROVISION E.3: Development Planning	
	<p>COMMENT: <i>Requests for revisions to Priority Development Project inventory requirements.</i></p> <p>The San Diego County Copermittees have requested that the Tentative Order be revised such that updates to Priority Development Project databases occur “regularly” instead of “at least annually.” Additionally, the City of Chula Vista requested the start date for Priority Development Project inventory begin December 2002 instead of January 2002, to reflect the start date for the San Diego County Copermittees’ regulatory oversight process pursuant to Order No. 2001-01.</p>
	<p>Copermittees City of Chula Vista San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the frequency of updates to project inventories should be less frequent than on an annual basis. However, the San Diego Water Board agrees with the request that the start date be changed for San Diego County Copermittees and has revised the language in the Tentative Order appropriately.</p>

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E3b-1 PROVISION E.3.b: Priority Development Projects	
<p>COMMENT: <i>Requests for revisions to development planning requirements to include different requirements for transportation projects.</i></p> <p>The San Diego County and Orange County Copermittees, the Riverside County Transportation Department, and others commented that transportation projects should be exempt from the requirement to implement pollutant control and hydromodification management BMPs set forth in the Tentative Order. Commenters contend that transportation projects should be allotted special consideration because, unlike other types of projects, they must also consider various design constraints having to do with limited right-of-way, utilities, street trees, fire truck access, and general public safety. Commenters recommended that transportation projects be held to USEPA Green Streets guidance as the design requirement.</p>	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Copermittees City of Dana Point City of Imperial Beach Orange County Copermittees Riverside County Transportation Department</p>
<p>RESPONSE: The San Diego Water Board generally agrees with the commenters regarding the unique constraints associated with existing roadways.</p> <p>The Tentative Order has been revised to provide an exemption from the Priority Development Project designation for projects where retrofitting of existing paved alleys, streets, or roads are designed and constructed in accordance with USEPA Green Street guidance. However, this exemption is only allowed for existing road and not new ones. This is because new roads are not yet spatially constrained and should be able to incorporate the pollutant control and hydromodification management BMPs during the planning stages. The Tentative Order also allows the Copermittees to incorporate alternative compliance options during the planning stages of the new road projects. The San Diego Water Board maintains that controlling pollutants and managing flows coming from roads is critical because roads are significant sources of pollutants and add significant new impervious surfaces.</p> <p>Commenters should also note that routine maintenance activities associated with transportation projects such as maintaining original line and grade, or repairing potholes, is not considered a Priority Development Project and is not subject to any structural BMP requirements.</p>	

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E3b-2 PROVISION E.3.b: Priority Development Projects	
	<p>COMMENT: Request for a clear definition of "directly discharges to" an Environmentally Sensitive Area (ESA).</p> <p>The San Diego County Copermittees and the City of Imperial Beach have requested that Provision B.3.b.(1) be revised to clearly define "directly discharges to" an ESA. The Copermittees are concerned that language in the Tentative Order is confusing and can be misinterpreted.</p>
	<p>Copermittees City of Imperial Beach San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the comment.</p> <p>The San Diego Water Board revised the language in Provision B.3.b.(1) to more clearly define "directly discharges to."</p>

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E3b-3	PROVISION E.3.b: Priority Development Projects
	<p>COMMENT: <i>Requests for modifications to the types of projects defined as Priority Development Projects and subject to the storm water pollutant control and hydromodification management structural BMP requirements.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees, several individual Copermittees, members of the Building Industry, Industry, Clean Water Now, and Engineering/Design Consultants submitted comments regarding the types of projects defined as Priority Development Projects. Clean Water Now expressed concern with the types of projects that are considered Priority Development Projects. The Copermittees, Building Industry, and Engineering/Design Consultants provided recommendations for the types of projects that should be defined as Priority Development Projects and therefore subject to the storm water pollutant control and hydromodification management structural BMP requirements, and the types of projects that should be exempt from those requirements.</p> <p>The Copermittees made several comments on this topic, which are summarized below:</p> <ul style="list-style-type: none"> ● Single family residences should be exempt because the requirements are complex and difficult for the regular homeowner to understand, and that the potential for pollutant generation is considerably less than an industrial or commercial site; ● Driveways should not be included as Priority Development Projects because, unlike roads, driveways experience low daily trips. The Copermittees suggest implementing a lower performance standard for BMPs implemented on driveways than other Priority Development Projects; ● The Tentative Order should include qualifiers for parking lots that would trigger Priority Development Project status only if they were uncovered; ● Maintenance access roads should be exempt; ● The Tentative Order should allow exemptions for parking lots and other projects that are constructed with permeable surfaces; ● The Tentative Order should allow exemptions for flood control and emergency projects; ● The exemptions allowed for LEED certified single family residences is inappropriate because the program encompasses other environmental considerations, and are outside the scope of storm water permitting; ● Triggers for Priority Development status should be simultaneously based on soil type and square footage of impervious surface; ● The Tentative Order should allow exemptions for “Watershed Protection Projects” that are undertaken to rehabilitate or prevent environmental, social, and economic damage to the watershed;
	<p>Building Industry / Industry American Society of Landscape Architects San Diego Green Building Council San Diego Gas and Electric Company Southern California Gas Company</p> <p>Copermittees City of Chula Vista City of Imperial Beach City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Clean Water Now</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	<ul style="list-style-type: none"> The hillside development category should be removed because it is not needed. <p>Some Engineering/Design Consultants suggested that Priority Development Projects be exempt if they are designed and constructed with specific materials or a voluntary certification program. San Diego Gas and Electric and the Southern California Gas Company commented that linear underground/overhead (utility) projects should be exempt from Priority Development Project status due to the nature of their construction.</p>	
	<p>RESPONSE: The San Diego Water Board generally disagrees with the requests to remove some project categories from Provision E.3.b, or to exempt certain types of projects from the requirement to implement storm water pollutant control and hydromodification management BMPs. Such BMPs are needed to protect water quality. The list of project categories in Provision E.3.b represents projects that result in the creation of significant areas of impervious surface and/or are pollutant generating in nature, which in turn contributes to pollutants in storm water discharges and altered flow regimes that cause accelerated erosion of channel bed and banks, and consequently degraded stream conditions.</p> <p>With the exception of driveways, the Priority Development Project categories have not changed substantially in San Diego Water MS4 permits. Provision E.3.b of the Tentative Order is consistent with the Fourth Term MS4 permits adopted by the San Diego Water Board for Orange County and Riverside County.</p> <p>Driveways were added as to the Priority Development Project categories because, although they experience much less traffic than roads, they still generate pollutants and create significant impervious surfaces that can impact downstream receiving waters, and must be mitigated. Similarly, even covered parking lots cause impacts for which mitigation is needed because rooftops also add to the impervious surface footprint. Research shows that even incremental increases in impervious surface, as low as 3-5 percent of the watershed area in the semi-arid climate of southern California, can result in degradation of receiving streams (Stein, E. and Zaleski, S., 2005. Technical Report 475, Managing Runoff to Protect Natural Streams: The Latest Development on Investigation and Management of Hydromodification in California. December 30, 2005.).</p> <p>Creation of impervious surface is a concern to the San Diego Water Board and construction with pervious materials that allow infiltration and other natural hydrologic processes are preferred. There is no need to exempt parking lots and other projects constructed with pervious materials from Priority Development Project status because they are not considered Priority Development Projects in the first place. Similarly, maintenance access roads as well as the majority of linear utility projects are not Priority Development Projects because they do not necessarily result in the placement of impervious surfaces above the threshold square footages</p>	

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E3b-3 PROVISION E.3.b: Priority Development Projects

associated with Priority Development Projects.

Priority Development Project status is based on both the type of project being built and associated pollutants anticipated to be generated, and a threshold for the creation or replacement of impervious surface. Soil type comes into play in terms of meeting the retention requirement, which is discussed in the response to comment E3c1-1. The San Diego Water Board disagrees with the recommendation to define Priority Development Projects by soil type because this is accounted for in the size and type of BMPs as dictated by the retention requirement.

The San Diego Water Board disagrees that hillside development projects should be exempt. These projects are susceptible to causing accelerated erosion and therefore must implement structural BMPs. The San Diego Water Board further disagrees that there should be exemptions for emergency projects or flood control projects. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design and construction of a building or structure. The San Diego Water Board believes that it may be suitable to relax the structural BMP standards for, or exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated if the Tentative Order provided a blanket exemption.

The San Diego Water Board disagrees that an exemption from the Priority Development Project structural BMP requirements should be provided for all single family residences. The definition of Priority Development Projects in the Tentative Order already excludes a majority of single family residences that may be developed or redeveloped. New single family residences must create 10,000 square feet or more of impervious surface, or 5,000 square feet or more of impervious surface as a Hillside Development, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Redevelopment single family residence projects must create or replace 5,000 square feet or more of impervious surface, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Single family residences that are defined as Priority Development Projects can have a significant impact on receiving water quality and it is appropriate for these projects to implement the Priority Development Project structural BMP requirements.

The San Diego Water Board removed language pertaining to the option for single family residences to be designed and constructed with LEED certification to qualify as exempt from Priority Development Project status.

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	<p>This is because several commenters stated that including this requirements was outside the scope of water quality regulation, and that the LEED program was too specific of a certification requirement. To avoid any inconsistency regarding equivalent certification programs and for more streamlined requirements, this option, and hence the exemption allowed for single family residences, was removed. Single family residences large enough to trigger the size thresholds associated with Priority Development Projects are a source of pollutants and altered flow regimes, and therefore must be required to implement structural BMPs. The Copermittees must inspect such BMPs as part of their oversight programs to ensure that homeowners are properly maintaining the BMPs and the BMPs continue to operate as designed in order for the Copermittees to meet the MEP standard of the Clean Water Act.</p> <p>Finally, the San Diego Water Board disagrees that there should be an exemption for “Watershed Protection Projects.” The commenters should note that Priority Development Projects are not only defined by square footage of impervious surface, but also the type of project being constructed. The types of projects described in the comment, such as erosion mitigation, restoration of rivers and ecosystems, or groundwater recharge, do not need to be explicitly provided exemptions because they would not be considered Priority Development Projects in the first place if they do not create or replace impervious surface in exceedance of the thresholds in the Tentative Order.</p> <p>The San Diego Water Board has also revised the Tentative Order to allow the Copermittees to provide exemptions for all types of projects. The Copermittees have the ability to exempt projects from meeting the hydromodification management requirements in areas where they have deemed it appropriate to do so. However, in order to utilize this option, Copermittees must first perform the optional Watershed Management Area Analysis described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of this option.</p>	

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E3b-4 PROVISION E.3.b: Priority Development Projects	
<p>COMMENT: <i>Redevelopment Priority Development Projects that were subject to previous structural BMP requirements should not be subject to new structural BMP requirements.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees each submitted comments requesting that language be added to the Tentative Order that would specify structural BMP requirements are not applicable to Priority Development Projects (or portions thereof) if the project already has implemented structural BMPs pursuant to requirements of prior MS4 permits.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees in concept with the Copermittees' request.</p> <p>Although some projects may already have structural BMPs onsite, the performance requirements of those BMPs do not necessarily meet the requirements of the Tentative Order. Order No. R9-2007-0001 does not have the numerical storm water pollutant control retention performance standard, therefore redevelopment sites that were subject to Order No. R9-2007-0001 must update their BMPs during the design phase. In some cases, redevelopment projects will already have BMPs that meet the storm water pollutant control and hydromodification management BMP requirements. In these instances, the requirements of the Tentative Order are met and there is no need to change the language.</p>	

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E3c-1 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
<p>COMMENT: <i>The Tentative Order ignores regional comprehensive plans developed by municipalities and SANDAG.</i></p> <p>The Jamul Dulzura Community Planning Group and Julian Community Planning Group assert that the requirements in the Tentative Order are contradictory to plans developed by SANDAG and subsequently included in General Plans that include sound principles such as encouraging redevelopment. The Tentative Order's requirements amount to punishing or dis-incentivizing urban infill projects.</p>	<p>Community Planning Groups Jamul Dulzura Community Planning Group Julian Community Planning Group</p>
<p>RESPONSE: The San Diego Water Board strongly disagrees that the requirements in the Tentative Order are contradictory to principles advocated in regional planning documents. In fact, the Tentative Order is heavily based on planning at the watershed scale, as represented in the Water Quality Improvement Plan requirements. The Tentative Orders increases flexibility for the Copermitees to address urban infill and redevelopment projects by not mandating only on-site BMPs.</p> <p>Redevelopment projects will be required to implement structural BMP requirements that are needed to protect downstream water quality. However, if a Copermitee finds that implementation of the required BMPs fully onsite will not result in meaningful improvements in either pollutant control or hydromodification management, then that Copermitee has the option to allow compliance elsewhere in the watershed where more substantial improvements can take place. There are no additional requirements for redevelopment projects versus new projects, therefore redevelopment projects are not being penalized, as suggested by the commenters.</p> <p>Furthermore, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additionally, more exemptions could be included on a watershed-specific basis if the Copermitees in the Watershed Management Area elect to perform the optional Watershed Management Area Analysis as described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of these options.</p>	

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E3c-2 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements		
E3c-2	<p>COMMENT: Request for requirements that allow development of watershed-specific structural BMP performance standards in Water Quality Improvement Plans.</p> <p>The Orange County and San Diego County Copermittees assert that the Tentative Order requires a “one-size-fits-all” approach and request that the Tentative Order allows for watershed-specific performance requirements for structural BMPs. Members of the Building Industry, the City of Imperial Beach, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requested or expressed support for a similar concept. The Environmental Groups support including alternative compliance options that provide “off-ramps” for the baseline “one size fits all” structural BMP performance requirements.</p>	<p>Building Industry / Industry American Society of Landscape Architects</p> <p>Copermittees City of Imperial Beach Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>Engineering/Design Consultants Latitude 33 Planning and Engineering Project Design Consultants</p> <p>Societies/Associations/Coalitions BIOCOM</p> <p>Other Entities Carol Crossman Gable PR Hughes Marino Marston+Marston Nuffer, Smith, and Tucker San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order requires a “one-size-fits-all” approach for the implementation of structural BMPs.</p> <p>For the Priority Development Project structural BMP performance requirements, site specific conditions must be taken into account upon selecting appropriate BMPs. Provision E.3.c.(1)(a), which describes requirements for storm water pollutant control, the Tentative Order states that: “Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume).” While each Priority Development Project must retain the volume of storm water runoff produced from the 24-hour 85th percentile storm, the actual volume retained will vary based on site specific factors, namely soil type and associated infiltration rates. The requirement to retain the volume of water associated with this size storm is appropriate for the reasons stated in the response to comment E3c1-1.</p>	

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E3c-2 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
<p>Similarly, Provision E.3.c.(2)(a), which describes requirements for hydromodification management, states that: <i>“Post-project runoff flow rates and durations must not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects).”</i> This requirement involves implementing BMPs for “the range of flows that result in increased potential for erosion,...” which is necessarily a site-specific requirement. The range of flows that cause downstream erosion from one Priority Development Project may be different than the range of flows that cause erosion from another Priority Development Project located in a different area in the watershed. Therefore, very different BMPs might be required from the two sites.</p> <p>The San Diego Water Board agrees that greater improvements to water quality in the watersheds may be realized if Priority Development Projects were allowed to implement some requirements offsite, as opposed to strictly onsite. For this reason, the Tentative Order allows for “alternative compliance” in instances where the Copermittee determines that offsite measures will have a greater overall water quality benefit for the Watershed Management Area than if the Priority Development Project were to implement structural BMPs onsite. Consequently, watershed-specific structural BMP requirements are present in the Tentative Order in the form of allowable compliance offsite. The “alternative compliance program” has been substantially re-written for simplicity, and also to better align this program with the planning efforts of the Copermittees in the Water Quality Improvement Plans.</p> <p>The alternative compliance program, which is described in Provision E.3.c.(3), is an option for Priority Development Projects where the Copermittee has participated in the development of a Watershed Management Area Analysis as part of the Water Quality Improvement Plan (described in Provision B.3.b.(4)). Such an approach is consistent with the latest findings in hydromodification management by the scientific community. In the Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: <i>“An effective [hydromodification] management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.”</i></p> <p>Consistent with the ideas brought forth by the SCCWRP report, in the Watershed Management Area Analysis of Provision B.3.b.(4), which is optional, the Copermittees will develop watershed maps that include as much detail</p>

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E3c-2 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
<p>about factors that affect the hydrology of the watersheds as is available. Such factors included identification of areas suitable for infiltration, coarse sediment supply areas, and locating stream channel structures and constrictions. Once these factors are mapped and studied, the Copermittees can identify areas in the watersheds where “candidate projects” may be implemented that are expected to improve water quality in the watershed by providing more opportunity for infiltration, slowing down storm water flows, or attenuation of pollutants naturally via healthy stream habitat. These projects may be in the form of retrofitting existing development, rehabilitating degraded stream segments, identifying regional BMPs, purchasing land to preserve valuable floodplain functions, and any other projects that the Copermittees identify.</p> <p>Under the alternative compliance program, Priority Development Projects may be allowed to fund, partially fund, or implement a candidate project, in lieu of implementing structural BMPs onsite, if they enter into a voluntary agreement with the Copermittee permitting this arrangement. If compliance involves funding or implementing a project that is outside the jurisdiction of the Copermittee, then that Copermittee may enter into an inter-agency agreement with the appropriate jurisdiction(s).</p> <p>In response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Provision B.2.b.(4) provides an optional Watershed Management Area Analysis that may allow the Copermittees to identify additional areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions other than the ones specified in the Tentative Order, then, would be applicable on a watershed basis, and would require supporting rationale.</p> <p>In summary, the Tentative Order includes requirements for site-specific structural BMP requirements and exemptions. In order for them to be realized, the Copermittees must perform up-front analysis to support both the alternative compliance program and watershed-specific hydromodification management BMP exemptions. The San Diego Water Board believes that this approach will allow for meaningful improvement to water quality in the watersheds, as well as the efficient use of resources for innovative projects, as opposed to requiring structural BMPs to be fully implemented on all sites.</p>

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E3c-3 PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: Request for modifications to Priority Development Project structural BMP infiltration and groundwater protection pre-treatment requirements.</p> <p>The San Diego County Copermittees and the City of National City commented that pre-treatment for infiltration BMPs on areas of industrial or light industrial activity should only be required if significant pollutant levels are present or if source control BMPs will not provide pre-treatment. Contech Engineer Solutions expressed concern that without clear and specific pre-treatment standards for infiltration BMPs, the Copermittees will accept pre-treatment systems that will require significant maintenance to ensure proper operation. Contech Engineer Solutions recommended very specific design standards for pre-treatment systems.</p>
	<p>Copermittees City of National City San Diego County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board agrees with the Copermittees comments. The San Diego Water Board conceptually agrees with Contech Engineered Solutions, but disagrees that including such specific design standards are necessary.</p> <p>The San Diego Water Board has revised Provision E.3.c.(5)(a)(vi) to allow infiltration BMPs on industrial or light industrial areas if source control BMPs will not expose groundwater to activities that are a high threat.</p> <p>The San Diego Water Board did not revise Provision E.3.c.(5)(a)(i). The Copermittees are required to inspect BMPs at Priority Development Projects to confirm they continue to operate as designed. If structural BMPs on Priority Development Projects are not properly maintained, the Copermittees must enforce its ordinances to achieve compliance with its ordinances and the requirements of the Tentative Order.</p>

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E3c-4	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: <i>General concerns associated with the development planning structural BMP performance requirements.</i></p> <p>Comments from members of the Building Industry, Community Planning Groups, the Copermittees, Environmental Organizations, State Government, Societies/Associations/Coalitions, and Other Entities expressed various concerns about the development planning structural BMP performance requirements for Priority Development Projects.</p> <p>Several commenters expressed concerns with the potential costs associated with enforcing and implementing the changing requirements for development projects, or the uncertainty of the impacts of those new requirements. The South Laguna Civic Association expressed concern that the current development planning requirements are already resulting in the degradation and destruction of creeks, wetlands, and coastal habitats. David Akers, P.E., expressed concern with current practices and supports requirements that will result in sustainable development. The City of Chula Vista questioned what should be done water collected in rain barrels and other retention facilities if there is a lack of demand during the rainy season.</p>	<p>Building Industry / Industry Associated General Contractors of America</p> <p>Community Planning Groups Julian Community Planning Group Ramona Community Planning Group</p> <p>Copermittees City of Chula Vista County of San Diego Orange County Copermittees</p> <p>Environmental Organizations Clean Water Now South Laguna Civic Association</p> <p>Engineering/Design Consultants David J. Akers, P.E.</p> <p>State/Federal Government Senator Mark Wyland</p> <p>Societies/Associations/Coalitions San Diego Association of Realtors South County Economic Development Council</p> <p>Other Entities Carol Crossman Continental Maritime of San Diego Nuffer, Smith, and Tucker Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants</p>
	<p>RESPONSE: The San Diego Water Board understands the concerns that have been expressed by the commenters.</p> <p>Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits in Orange and Riverside Counties. However, the Tentative Order also provides the Copermittees with more flexibility to use their limited resources in the most effective and efficient manner to protect the quality of the San Diego Region's receiving waters.</p> <p>The commenters generally are concerned with the costs of implementing the development planning structural BMP performance requirements, but do not consider the costs of not addressing impacts that have been caused by existing development, and may be caused by future development. The San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the</p>	

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E3c-4	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits.</p> <p>The development planning structural BMP performance requirements have also evolved significantly since 2001 because of the degradation and destruction of creeks, wetlands, and coastal habitats that have been observed as developed areas have expanded. Thus, the Tentative Order not only includes development planning requirements to protect against impacts to receiving waters that may be caused by future development, but also includes requirements that begin to address impacts that are being caused by existing development. The Tentative Order will allow the Copermittees to address existing development and new develop with a watershed-scale approach that is expected to lead to more sustainable configurations of the watersheds in the San Diego Region over the long term.</p> <p>The question posed regarding the use of retained storm water if there is a lack of demand is not new. The municipalities and several agencies in the San Diego Region have also posed questions about what can be done to address the sustainable water supply concerns that are being expressed as the population grows and demand for water increases. There may be ways to potentially link the two issues to create solutions to address the problems. The Tentative Order was developed to provide the flexibility that will allow the Copermittees to work with other agencies to perhaps identify solutions with mutual benefits.</p>	

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
<p>COMMENT: <i>Objections with storm water pollutant control retention BMP performance requirements for Priority Development Projects.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants contend that the storm water pollutant control retention requirement is infeasible for many Priority Development Projects due to poor soil types and other factors. The Industrial Environmental Association asserts that the Tentative Order does not provide sufficient detail for consistency among Copermittees in evaluating conditions for technical infeasibility. The Copermittees have requested that the term “runoff” be included in the description of “design capture volume.”</p> <p>Other commenters stated that the retention standard will result in runoff “starved” receiving waters. Commenters also stated that the requirement to increase bioretention by 25 percent is arbitrary and without basis.</p> <p>Conversely, Natural Resources Defense Council argues that retention of the 85th percentile storm event is an appropriate performance standard and should be required at all sites, regardless of the specific site conditions. David Aker, P.E., also supports the requirement to retain storm water and contends that it is essential for sustainable development.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition Building Industry Association of Southern California, Inc. Industrial Environmental Association Otay Land Company Otay Ranch New Homes San Diego Green Building Council</p> <p>Copermittees City of Chula Vista City of Vista County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Natural Resources Defense Council</p> <p>Engineering/Design Consultants Contech Engineered Solutions David J. Akers, P.E.</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees that the retention standard, as written in the Tentative Order, is inappropriate.</p> <p>The San Diego Water Board has recognized that the retention of the 85th percentile storm event is MEP, and already incorporated the performance standard in both the Orange County and Riverside County MS4 permits. Other MS4 permits in southern California (e.g., Ventura County, Los Angeles County) incorporate similar performance standards, and it is supported by USEPA.</p> <p>Commenters should note that under the Alternative Compliance Program described in Provision E.3.c.(3), Priority Development Projects will have the option to perform mitigation offsite <i>“if the Copermittee determines that the offsite project will have a greater overall water quality benefit for the Watershed Management Area than implementing BMPs onsite.”</i> Theoretically, a Priority Development Project could make the case that retention of the design capture storm is not feasible, or that doing so would result in an unnatural water balance, therefore</p>	

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
<p>offsite compliance is preferred. This option is only available to the Priority Development Project if the Copermittee elects to offer it. The San Diego Water Board disagrees that the Tentative Order should provide detail on what constitutes infeasibility because the Copermittees have the experience to make these determinations, and are free to develop consistency standards if the need arises.</p> <p>Language regarding the application of a site specific retention standard was removed because several commenters argued, and the San Diego Water Board agreed, that the analyses could be subjective and introduce uncertainty for the Copermittees in terms of determining compliance. Moreover, comparing the volume of runoff produced from an undeveloped site to that of a Priority Development Project would not be comparing equivalent pollutant levels, because the pollutants expected to be generated from a Priority Development Project would not have been present in runoff from undeveloped land. For simplicity, the language pertaining to site specific retention standards was removed. The word “runoff” was added to the description of “design capture volume” per the Copermittees’ requests.</p> <p>Similarly, the language pertaining to biofiltration LID BMPs was removed because the Alternative Compliance Program was restructured to better coincide with the Copermittee’s planning efforts in the Water Quality Improvement Plan.</p>

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Allow San Diego Copermittees to continue implementation of current San Diego Hydromodification Management Plan, as approved under Resolution No. R9-2010-0066.</i></p> <p>The San Diego County Copermittees and several other commenters have requested that the <i>Hydromodification Management Plan for San Diego County</i> (HMP), which was approved by the San Diego Water Board in 2010 under Resolution No. R9-2010-0066, be memorialized in the Tentative Order as the standard for hydromodification management.</p>	<p>Building Industry / Industry Building Industry Association of Southern California, Inc. Otay Land Company Otay Ranch New Homes</p> <p>Community Planning Groups Jamul Dulzura Community Planning Group Pala Pauma Valley Community Sponsor Group</p> <p>Copermittees City of Chula Vista City of Del Mar City of Poway City of San Diego County of San Diego County of San Diego Office of County Counsel San Diego County Copermittees</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees with commenters that it is appropriate to reference the San Diego County HMP in the Tentative Order.</p> <p>The San Diego HMP does not include standards that are currently included in the Fourth Term MS4 permits for Orange and Riverside Counties. However, commenters should note that the requirements in the Tentative Order allow the San Diego Copermittees to use the information and analysis that was used to develop the San Diego HMP. In addition, the San Diego HMP will remain in effect until the Water Quality Improvement Plans are accepted by the San Diego Water Board.</p> <p>The San Diego Water Board is aware that the San Diego County Copermittees spent over \$1 million to develop the HMP. This investment is not lost because the Tentative Order allows the Copermittees to build upon the</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements

findings in the HMP; thus, the information developed is not irrelevant. For example, the San Diego HMP used an analysis to determine the range of flows for which Priority Development Projects must implement hydromodification management BMPs. This analysis includes evaluation of site specific conditions, including the level of susceptibility of the downstream receiving water to erosion. Further, the analysis includes a mechanism for Priority Development Projects to determine appropriately sized BMPs, depending on the condition of the downstream receiving water. This analysis is the crux of the San Diego HMP, and the Tentative Order allows its continued use.

There are two important changes in the Tentative Order from Order No. R9-2007-0001 that the San Diego County HMP must make adjustments for. Firstly, the Tentative Order includes a requirement that Priority Development Projects use the "predevelopment" condition for evaluating the baseline hydrology for a specific site. The San Diego HMP, as written, can still be used because this requirement only affects the input variables used in the analysis. The San Diego Water Board is requiring the use of the pre-development condition for the reasons discussed in the Response to Comment E3c2-2.

Secondly, in response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed on a watershed-basis only if the Copermittees perform a watershed-specific analysis, as part of the Water Quality Improvement Plan that justifies inclusion of exemptions. Much of this work has already been done by the San Diego County Copermittees in the HMP, as the HMP contains many exemptions above and beyond those described in Order No. R9-2007-0001. Again, the investment made in the HMP is not lost; the Copermittees must develop the Watershed Management Area Analysis described in Provision B.3.b.(4) of the Tentative Order and include the exemptions and rationale therein.

Finally, the San Diego County Copermittees were notified before completion of the HMP that requirements pertaining to hydromodification management would likely change. As part of the development of the HMP, the Copermittees submitted a first draft on May 1, 2009. In a comment letter dated June 29, 2009, the San Diego Water Board stated that: *"Although the Permit (R9-2007-0001) does not specifically interpret "pre-project" conditions to reference pre-development (naturally occurring) conditions, the Copermittees are not restricted from implementing this more conservative standard. Tentative Order No. R9-2009-0002 (the draft Orange County Municipal Permit) dated June 18, 2009 contains this more restrictive language. The San Diego*

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
<p><i>Copermittees should be aware that the next iteration of the Permit may contain similar language. Additionally, the exceptions for hydromodification management measures included in the Permit (provision D.1.g.(3) for discharges into hardened channels will also likely be eliminated.”</i></p> <p>Although this quote referred to text in the draft Orange County MS4 Permit, the requirements for using the pre-development baseline hydrology for hydromodification management were eventually included in the final versions of the MS4 permits for both Orange and Riverside Counties. Therefore the San Diego County Copermittees were well aware of the evolving requirements before their HMP was finalized.</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Objections with requiring pre-development versus pre-project hydrology for hydromodification management BMP performance standards.</i></p> <p>Comments submitted by Copermittees, Building Industry, Community Planning Groups, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities objected to the use of pre-development hydrology as a baseline for hydrograph matching (and therefore, BMP design) in the case of redevelopment projects, and that the pre-project design standard is the appropriate standard. Commenters argue that including the pre-development standard would be tantamount to requiring a Priority Development Project to mitigate beyond its impacts.</p>	<p>Building Industry / Industry San Diego Green Building Council</p> <p>Community Planning Groups Julian Community Planning Group Pala Pauma Valley Community Sponsor Group</p> <p>Copermittees City of National City City of Poway City of San Diego City of San Diego City Attorney County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Engineering/Design Consultants Project Design Consultants</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees with the commenters that pre-project hydrology should be used as the baseline hydrology for redevelopment projects.</p> <p>The “pre-development” language in the Tentative Order has not been removed, but the qualifier “naturally occurring” has been removed from the text because some commenters stated that it caused confusion rather than providing clarity. The definition for “pre-development runoff condition” has been revised in Attachment C and discussion pertaining to this definition and how the San Diego Water Board expects Copermittees to interpret this phrase has been added to the Fact Sheet.</p> <p>Fundamentally, the San Diego Water Board believes that using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions</p>	

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements

to already built-out watersheds. Using the pre-project hydrology as a baseline for redevelopment projects results in propagating the unnatural hydrology of urbanized areas, which is largely made up of impervious surfaces. Flows from impervious surfaces are highly erosive and consequently have detrimental effects on receiving waters in the San Diego Region. Furthermore, propagating the urbanized flow regime does not support conditions for restoring degraded or channelized stream segments, and would forever sentence such streams to the degraded state. Rehabilitating or restoring degraded stream segments is a critical component of the Tentative Order and is expected to be incorporated into Copermittee's strategies for improving water quality in the watersheds. Finally, the predevelopment standard is not requiring Priority Development Projects to mitigate beyond its impacts because the project would be perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion).

Commenters have stated that it is impracticable to require hydromodification management BMPs to mimic the "pre-Columbian" hydrology because it would be impossible to know the historical conditions with any certainty. However, estimating the conditions of historical conditions is not the intent of this requirement. Rather, using the characteristics of a more natural hydrological condition than that of an urbanized setting is the intent.

In terms of using a pre-development condition for the baseline hydrology, a Priority Development Project has a number of options for estimating this condition when it is not known. For example, a Priority Development Project may consult soil maps, such as those published by the National Resources Conservation Service (NRCS). These readily available maps show the soil types in a given area, regardless of whether or not the land has been developed. This information, along with information regarding existing grade, constitute sufficient data needed to approximate the pre-development condition and intent of the Tentative Order.

Another option is for Priority Development Projects to use characteristics of a nearby open space area as an equivalent baseline. Or, a Priority Development Project may be able to research the geotechnical report associated with a structure upon its development. In any case, the San Diego Water Board asserts that the pre-development hydrology of the area in question can be roughly estimated. However, using the hydrology of a more natural condition, even if not precisely known, will provide significant benefit to receiving waters over using the hydrology associated with pervious (developed) surfaces. Therefore in order to support the basic objectives of the Clean Water Act, which are to restore and maintain the chemical, physical, and biological integrity of the nation's waters [emphasis added], the most appropriate standard to use for hydromodification management is the standard associated with the pre-development runoff condition.

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>Include exemptions from the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters or there are special circumstances.</i></p> <p>The Copermittees, Building Industry, Engineering/Design Consultants, and others have commented that the Tentative Order should restore exemptions for the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters, such as concrete-lined or otherwise hardened channels. Commenters also argue that exemptions should be allowed for emergency projects or flood control projects.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition Building Industry Association of Southern California</p> <p>Copermittees City of Chula Vista City of Dana Point City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p> <p>Societies/Associations/Coalitions East Otay Mesa Property Owners Association Otay Mesa Property Owners Association South County Economic Development Council</p> <p>Other Entities National Enterprises Inc.</p>
<p>RESPONSE: The San Diego Water Board disagrees conceptually that blanket exemptions from hydromodification management BMP requirements should be granted to all redevelopment projects that discharge to hardened channels.</p> <p>Although the San Diego Water Board has not been advocating for the implementation of expensive BMPs to protect stream reaches that are not susceptible to erosion, the idea was to use the resources obtained from these low-threat Priority Development Projects on separate projects located elsewhere in the watershed, where protection from hydromodification is critical. In the most recent findings regarding hydromodification management, found in Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: <i>“The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies...”</i></p>	

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements

SCCWRP Technical Report No. 667 further states that: “*An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed [Emphasis added].*”

The Tentative Order released on October 31, 2012 was written to incorporate these important watershed-based concepts. Nevertheless, several commenters voiced concern over the elimination of exemptions to hardened channels and other non-susceptible receiving waters. After careful consideration, the San Diego Water Board revised the Tentative Order to accommodate the re-introduction of exemptions. Provision E.3.c.(2) has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed; however, they would occur on a watershed-specific basis, and must be defined and defended by the Copermittees.

Under the newly created Provision B.3.b.(4), the Copermittees have been provided the option to perform a Watershed Management Area Analysis for the purpose of 1) characterizing the watersheds, 2) identifying alternative compliance projects that Priority Development Projects may use in lieu of implementing structural BMPs onsite, and 3) identifying areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions, then, would be applicable on a watershed-specific basis, and would require supporting rationale.

One reason why the San Diego Water Board has reservations regarding the idea of blanket exemptions is that allowing them without some sort of analysis is short-sighted. SCCWRP Technical Report 667 discusses the importance of watershed-based planning. The report states: “*There is usually also an exemption for projects discharging to hardened channels or waterbodies; however these exemptions may not be supportive of future stream restoration possibilities...*”

Although the San Diego Water Board understands that hardened channels may sometimes provide essential flood control, there are situations where stream rehabilitation can take place, and concrete segments can be removed. For this reason, if the Copermittees choose to perform the Watershed Management Area Analysis,

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>they may be able to differentiate between hardened stream segments where the concrete will likely never be removed, and other stream segments where there is a possibility for future rehabilitation. Nevertheless, an exemption for concrete-lined channels has been added to the Tentative Order.</p>	
<p>Finally, the Copermittees commented that there should be exemptions allowed for emergency projects or flood control projects. The San Diego Water Board disagrees with the Copermittees in either case. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design, approval, and construction of a building or structure. The San Diego Water Board believes that it may be appropriate to relax the structural BMP standards for, or altogether exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated by the project proponent if the Tentative Order allowed a blanket exemption.</p>	

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E3c2-4 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Objections with requirements to compensate for sediment supply.</i></p> <p>The Copermittees, Building Industry, and Engineering/Design Consultants have commented that management of sediment supply is a complicated and challenging issue, and more direction regarding the Tentative Order’s intent should be provided. Commenters have also stated that it is inappropriate to require analysis of sediment supply on a site-by-site basis, and that it is better addressed at the regional level.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermittees City of Chula Vista County of San Diego San Diego County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters that addressing the sediment supply issue when a Priority Development Project is under review is complicated and challenging. The intent of the Tentative Order is to protect the coarse sediment supply and ensure that Priority Development Projects will not impact the supply. Therefore, language pertaining to “compensating for” sediment supply has been removed.</p> <p>Instead, where a Copermittee is aware of areas where coarse sediment is naturally discharged to downstream receiving waters, then the San Diego Water Board expects the Copermittee to ensure the protection of this natural process by conditioning the Priority Development Project to either avoid the area, or implement measures that would allow the natural hydrologic process to continue.</p> <p>Please see Provision E.3.c.(2)(b) in the revised Tentative Order for the revisions.</p>	

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E3c2-5 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Monitoring and assessment program requirements will not provide information necessary to re-define the range of flows causing erosion.</i></p> <p>The City of Chula Vista commented that water quality monitoring as described in Provision D of the Tentative Order will not provide the necessary information to re-define the range of flows thought to cause erosion to receiving waters.</p>	<p>Copermittees City of Chula Vista</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the monitoring and assessment program requirements cannot provide information necessary to re-evaluate or re-define the range of flows causing erosion.</p> <p>The water quality monitoring described in Provision D.1.a.(2) represents the minimum level of monitoring needed to comply with the Tentative Order. If the Copermittees elect to re-evaluate the range of flows that are thought to cause erosion to downstream receiving waters, as defined in the San Diego County HMP, then they may design a monitoring program that will provide the necessary information to do so.</p>	

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E3c2-6 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>The low-flow thresholds included in the San Diego County HMP need to be revised.</i></p> <p>Project Design Consultants submitted comments suggesting that the schedule for development of the San Diego County HMP was extremely rushed, and technical expertise was ignored. The HMP should be revised and included in the Tentative Order.</p>	<p>Engineering/Design Consultants Project Design Consultants</p>
	<p>RESPONSE: The San Diego Water Board does not object to revising the low-flow thresholds included in the San Diego County HMP, provided that revisions are based on data acquired by the Copermittees. However, the process for updating this design standard in the HMP will occur on an ad-hoc basis and need not be referenced in the Tentative Order.</p>	

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E3c2-7 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>The hydromodification management BMP performance standards should allow the use of the erosion potential (Ep) method and in-stream metrics for compliance.</i></p> <p>The Building Industry Association of Southern California requests that the performance standards for hydromodification management allow the use of the Ep method. Requiring project-by-project flow duration control may not be as effective as a regionally-coordinated approach that combines upland control with in-stream remedies.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p>
	<p>RESPONSE: The San Diego Water Board considered the request and found that changes are not necessary.</p> <p>Although the language in Provision E.3.c.(2) does not specifically reference the concept of erosion potential, the Copermittees are not prohibited from using such an approach. Provision E.3.c.(2)(a) requires the Copermittees to require implementation of BMPs to ensure that post-project runoff flow rates and durations do not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that are deemed to cause erosion).</p> <p>However, Provision E.3.c.(2)(c) allows a Priority Development Project to utilize the alternative compliance program in lieu of complying with the requirement to implement structural BMPs onsite. Priority Development Projects are allowed to comply with the hydromodification management requirements by funding, partially funding, or implementing an offsite project, such as stream rehabilitation (which can include stream stabilization). The San Diego Water Board agrees that a regionally-coordinated approach that includes in-stream remedies is more effective than requiring flow duration control BMPs on every Priority Development Project, and for this reason has written the Tentative Order to allow these metrics. However, ultimately, administration of the Alternative Compliance Program is at the discretion of the Copermittees. If the Copermittees find that administering the Alternative Compliance Program is too difficult, costly, or is not in a Copermittee's best interest, than they are not obligated to do so.</p>	

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E3c2-8 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
<p>COMMENT: <i>There is insufficient data to suggest a need to change the hydromodification management requirements.</i></p> <p>The City of Mission Viejo, Orange County and San Diego County Copermittees have commented that there is no need to include new requirements for hydromodification management, as no new data has emerged suggesting a need for change and the Copermittees have only begun to implement their current HMPs.</p>	<p>Copermittees City of Mission Viejo Orange County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that there have been any fundamental changes to the hydromodification management requirements from those included in the Fourth Term storm water permits. The basic premise, which is requiring hydromodification management for erosive flows as defined by the Copermittees, has not changed. The San Diego County Copermittees spent considerable funds and effort to define the range of flows that cause erosive effects, and the Tentative Order does not trump those efforts.</p> <p>The San Diego Water Board disagrees with the notion that no new data has emerged regarding hydromodification management. Several commenters have referenced Southern California Coastal Water Research Project's latest findings in <i>Hydromodification Assessment and Management in California</i> (Technical Report 667). SCCWRP Technical Report 667 clearly states that: <i>"An effective management program will likely include combinations of on-site measures...in-stream measures...and offsite measures...."</i></p> <p>Further, SCCWRP Technical Report 667 states that: <i>"The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies."</i></p> <p>The requirements in the Tentative Order are consistent with the findings in this report and MS4 permits in Orange and Riverside Counties. The San Diego Water Board agrees with the underlying premise advocated in this report, which is that effective hydromodification programs begin with watershed-scale analysis and planning.</p> <p>Although the Copermittees have just recently begun implanting their HMPs, the changes needed to incorporate the requirements of the Tentative Order will not undermine the mechanics of the HMPs and therefore will not require substantial revisions. The incorporation of the pre-development baseline standards and inclusion of only qualified exemptions, resulting from thorough watershed analyses, is essential for protecting receiving streams from erosion caused by altered flow regimes.</p>	

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E3c3-1 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Objections to the onsite LID biofiltration treatment control BMP performance standards.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants have commented that there is no need to include a 1.5 times multiplier on biofiltration LID BMPs, and that doing so is technically unjustified.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p> <p>Copermittees City of Vista Orange County Copermittees Riverside County Copermittees</p> <p>Engineering/Design Consultants Contech Engineered Solutions Project Design Consultants</p>
	<p>RESPONSE: Provision E.3.c.(3) describing the Alternative Compliance Program has been substantially revised so that it coincides better with the watershed planning efforts of the Copermittees in the Water Quality Improvement Plans. As a result, the requirements related to LID biofiltration BMPs has been removed.</p>	

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E3c3-2 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
E3c3-2	<p>COMMENT: <i>Modify requirements and process to implement alternative compliance options.</i></p> <p>The San Diego County, Orange County, and Riverside County Copermittees, Engineering/Design Consultants, and Environmental Organizations have expressed concern with the process associated with the Alternative Compliance Program to Onsite Structural BMP Implementation. The Copermittees assert that this program should be administered by the San Diego Water Board, that more time than 4 years should be granted for alternative compliance project completion, and that the administrative costs would be prohibitive. The Environmental Organizations suggest that language be added to the Tentative Order to clearly indicate that the Copermittees are responsible for ensuring that alternative compliance projects are completed within the 4 year timeframe, and also expressed concerns as to whether the alternative compliance project would provide equal water quality benefits as implementing structural BMPs onsite. Engineering/Design Consultants submitted recommendations regarding how administration of the Alternative Compliance Program would work.</p>	<p>Building Industry / Industry American Society of Landscape Architects BIA Regulated Community Coalition Building Industry Association of Southern California San Diego Green Building Council</p> <p>Copermittees City of Imperial Beach County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups Natural Resources Defense Council</p> <p>Engineering/Design Consultants Project Design Consultants</p>
E3c3-2	<p>RESPONSE: The San Diego Water Board disagrees with the Copermittees that the Alternative Compliance Program should be administered by the San Diego Water Board and not by the Copermittees. The Alternative Compliance Program is provided as an option to the Copermittees. The Copermittees are not required to implement the Alternative Compliance Program. If, however, the Copermittees do implement the Alternative Compliance Program, it is expected to coincide with the Copermittees' watershed planning efforts and assist the Copermittees in reaching their goals of reducing pollutants in storm water runoff leaving their MS4s. This is because the alternative compliance projects consist of projects such as retrofitting existing development, where pollutant treatment can be an added benefit where no treatment currently exists; or stream rehabilitation, where natural attenuation of pollutants can occur as an ancillary benefit to improved stream habitat. Other example projects are regional BMPs that receive runoff from multiple areas, or the preservation or purchase of critical floodplain land.</p> <p>The Tentative Order establishes requirements for the Copermittees and not the San Diego Water Board. Therefore, it would inappropriate for the San Diego Water Board administer this program, but could assist in its implementation by streamlining permits for stream rehabilitation and restoration... The San Diego Water Board understands that the initial costs for administering this program could be significant; however, there are fiscal benefits in that Priority Development Projects could provide the funding for projects that are expected to improve water quality, thereby negating the need for Copermittees to expend their resources on BMPs to accomplish the</p>	

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E3c3-2 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements
<p>same thing. Finally, the Copermittees are not required to administer this program and can elect to administer BMPs strictly onsite. Provision E.3.c.(3) has been substantially revised for simplicity and to better coincide with the Copermittees' planning efforts, and all references to LEED certification have been removed.</p> <p>The San Diego Water Board further disagrees that more than 4 years should be granted for alternative compliance project completion. First of all, pollutants from the Priority Development Project are being discharged without treatment and there is not necessarily any equivalent treatment until the alternative compliance project is constructed (although temporal mitigation is required when there is a lag between the two projects). Second of all, the Tentative Order explicitly allows more time for projects where the Executive Officer approves additional time.</p> <p>The San Diego Water Board disagrees with the recommendation that the Tentative Order specify that the Copermittees are responsible for ensuring that the alternative compliance projects are completed within the 4 year time frame. The Tentative Order is issued to the San Diego County, Orange County, and Riverside County Copermittees; therefore all of these entities are responsible for complying with the requirements, and further discussion would be redundant.</p> <p>Finally, the San Diego Water Board agrees that the alternative compliance program presents some uncertainty regarding "greater water quality benefit" expected to come from these projects versus implementation of structural BMPs onsite. If the Copermittees elect to implement an Alternative Compliance Program, they are required to develop a list of potential candidate projects that can be implemented with the Watershed Management Area. The candidate projects will be included in the Water Quality Improvement Plans, which will be reviewed by the public and the San Diego Water Board before implementation takes place. The water quality benefits that can be achieved by implementing those candidate projects will likely be made evident during the public participation process in the development of the Water Quality Improvement Plans.</p>

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E3c3-3 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Request for modifications to the alternative compliance water quality credit system option.</i></p> <p>The Orange County Copermittees have requested that language pertaining to the water quality credit system be revised to remove the no-net impact limitations because certain projects may offer significant environmental benefits that are not necessarily related to water quality.</p> <p>The BIA Regulated Community Coalition recommended that any water quality credit system exercised by the Copermittees be included in the Water Quality Improvement Plans and be approved by the San Diego Water Board and not by its Executive Officer.</p>	<p>Building Industry / Industry Copermittees BIA Regulated Community Coalition Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the Orange County Copermittees that the no-net impact language should be removed from the Tentative Order. The optional credit system described in Provision E.3.c.(3)(d) is based on meeting the structural BMP performance standards as they pertain to protecting and improving water quality. A credit system that would allow other environmental benefits cannot necessarily ensure that water quality would be protected to the MEP standard, for which the performance standards are structured to achieve.</p> <p>The San Diego Water Board disagrees that a water quality credit system requires approval from San Diego Water Board instead of the Executive Officer because the provisions for such a credit system are clearly outlined in the Tentative Order. The Executive Officer will be able to determine whether or not the Copermittee has met the requirements as dictated in the Tentative Order. However, the public may request that any action taken by the Executive Officer be considered by the San Diego Water Board at any time.</p>	

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E3c3-4	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	<p>COMMENT: <i>Define a list of preferred or "best-in-class" BMPs and include specific guidance regarding evaluation of treatment systems in the Tentative Order.</i></p> <p>The San Diego Green Building Council commented that the Tentative Order should clearly define the best-in-class BMPs and require the creation of a system to catalogue the implementation strategies used by the various Copermittees, and that the database should include the measured water quality impacts from each site. Such information can be used as a resource for future projects and development.</p> <p>Contech Engineered Solutions recommended that the Tentative Order include specific guidance regarding evaluation of proprietary treatment systems, and that the Copermittees need to conduct a performance and feasibility assessment of such systems.</p>	<p>Building Industry / Industry San Diego Green Building Council Engineering/Design Consultants Contech Engineered Solutions</p>
	<p>RESPONSE: The San Diego Water Board disagrees with this comments because 1) the San Diego Water Board cannot dictate the manner of compliance with any requirements or regulation for any of the programs it administers, and 2) a "best-in-class" BMP cannot be concretely defined because the MEP standard is dynamic (see Appendix C for the definition of MEP). The Copermittees may choose to share information regarding BMP performance and evaluation of proprietary treatment systems via the Regional Clearinghouse or other mechanism. The Copermittees have the experience and expertise to define what are the appropriate BMPs.</p>	

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E3c3-5 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements		
	<p>COMMENT: <i>Mitigation should not be required if flow-thru biofiltration LID BMPs are used.</i></p> <p>The Building Industry Association of Southern California submitted comments stating that the Tentative Order should not require mitigation for the portion of the design storm volume that is not retained onsite if this volume is treated by biofiltration LID BMPs prior to discharge. This requirement penalizes and dis-incentivizes the use of these BMPs.</p>	<p>Building Industry / Industry Building Industry Association of Southern California</p>
	<p>RESPONSE: The San Diego Water Board has included the requirement that mitigation is necessary for the portion of the design storm volume that is not retained onsite because, although this remaining volume of storm water would be treated, the MEP standard as represented by the structural BMP performance requirements would not have been met. The requirement for mitigation is not limited to the use of biofiltration BMPs; mitigation is required no matter what type of flow-thru treatment BMP is utilized by the Priority Development Project. Therefore the San Diego Water Board disagrees that this requirement is penalizing the Priority Development Project for the use of biofiltration LID BMPs, as suggested by the commenter.</p> <p>Retention of the 85th percentile storm is clearly the MEP standard for storm water pollutant control, as represented by the Tentative Order and recently adopted MS4 permits in the San Diego Region, other areas of southern California, and elsewhere in the United States. Retention of anything less than the design storm volume must be mitigated because the MEP standard has not been met.</p>	

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E4-1	PROVISION E.4: Construction Management	
	<p>COMMENT: <i>Requests for "clarifications" for construction management requirements.</i></p> <p>The San Diego County and Riverside County Copermittees submitted requests for specific modifications to the language of Provision E.4 attempting to increase clarity to what is required of the Copermittees and what the Copermittees are to require of private party construction sites within their jurisdiction. The USEPA provided general comments on the need for the construction requirements to include enough specificity to determine compliance with the Tentative Order.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board generally agreed with the specific language modifications requested by the Copermittees and in many instances adjusted the language of Provision E.4 as requested.</p> <p>Specific changes were made to Provision E.4 to:</p> <ol style="list-style-type: none"> 1) Remove the requirement for the Copermittees to verify a project applicant has obtained coverage under permits, other than the State Water Board's General Construction Storm Water Permit, 2) Use the term 'pollution control plan' consistently; 3) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) to 'confirm' rather than 'ensure' the controls at the site reduce the discharge of pollutants in storm water from the site to the MEP; and 4) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) that effectively prohibits non-storm water discharges from the site from entering the MS4. <p>Modifications were also made to the opening paragraph of Provision E.4 requiring each Copermittee to implement a construction management program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1).</p> <p>Additionally, the San Diego Water Board made adjustments to Provision E.4 requirements setting minimum inspection frequencies equivalent to the amount required to confirm compliance with the Clean Water Act. Provision E.4.d(1)(a) specifically requires the Copermittees to conduct inspections at all inventoried sites, including high threat to water quality sites, at an frequency appropriate to confirm the site reduces the discharge of pollutants in storm water from the construction site to the MEP, and effectively prohibits non-storm water</p>	

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E4-1	PROVISION E.4: Construction Management
	discharges from entering the MS4. The San Diego Water Board supports the adaptive management approach in the Tentative Order and has structured the construction inspections to focus on those sites that represent a high priority to maintaining or protecting downstream surface water quality.

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E4-2 PROVISION E.4: Construction Management		
	<p>COMMENT: <i>Requests for modifications to construction site inventory, tracking, recordkeeping requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the construction management requirements that specific construction sites to be inventoried would include only those sites that involve any ground disturbance or soil disturbing activities, include a process for confirming adequate BMP implementation on inventoried sites, specify project 'completion' date not "anticipated completion" date; and 'weather condition during inspection' not 'approximate amount of rainfall since last inspection' on inspection forms, and require construction inventories to be updated quarterly not monthly.</p> <p>The Riverside County Copermittees provided recommended revisions to the construction requirements.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agreed with most of the changes requested by the commenters and modified Provision E.4 accordingly.</p> <p>However, the request to remove the requirement to include 'approximate amount of rainfall since last inspection' on the inspection forms, and the suggestion to include a process for confirming adequate construction BMP implementation for non-inventoried construction site were not incorporated into the revised Tentative Order. The San Diego Water Board is interested in site conditions after a significant rain event(s) therefore documenting the approximate amount of rainfall since the last inspection is required rather than the weather conditions during the inspection. A process for confirming adequate construction BMP implementation for non-inventoried sites can be developed and included in the jurisdictional program, but is not a requirement of the Tentative Order.</p> <p>The San Diego Water Board reviewed all of the recommended revisions provided by the Riverside County Copermittees. See Provision E.4 for those requested revisions that were incorporated into the Tentative Order.</p>	

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E4-3 PROVISION E.4: Construction Management		
	<p>COMMENT: Request to only require verification of coverage under Construction General Permit, not "applicable permits."</p> <p>The Copermitees commented that the requirement to verify permits other than the State Water Board's Construction General Permit is unnecessary because applicable permits are included as attachments to a construction projects SWPPP, and redundant with other environmental regulations.</p>	<p>Copermitees City of Chula Vista Orange County Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters.</p> <p>The San Diego Water Board modified the language in Provision E.4.a to require verification that the project applicant has obtained coverage under the Construction General Permit, only.</p>	

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E5-1 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Concerns with inspections by volunteers.</i></p> <p>The San Diego County Copermittees expressed concern with exposure to significant liability should a volunteer be injured in the course of an unauthorized inspection, or if private property is damaged during that inspection, or other unforeseen legal issues that result from volunteer groups conducting inspections of inventoried existing developments sites. Similar concerns were expressed by the Industrial Environmental Association and the San Diego Port Tenants Association.</p>	<p>Building Industry / Industry Industrial Environmental Association</p> <p>Copermittees San Diego County Copermittees</p> <p>Societies/Associations/Coalitions San Diego Port Tenants Association</p>
	<p>RESPONSE: The San Diego Water Board understands the position presented by the commenters and agrees that changes to the language in Provision E.5.c are necessary.</p> <p>Provision E.5.c was modified to restrict the use of Copermittee-trained volunteer monitoring or patrol programs to visual inspections of those inventoried facilities or areas that are publicly accessible. Additionally, the San Diego Water Board incorporated the Industrial Environmental Association's suggested change to the language of Provision E.5.c.(2). The ability of the Copermittee to use volunteer monitoring or patrol programs was included in the Tentative Order to give the Copermittees additional resources to accomplish the inspection requirements of Provision E.5.c. The Copermittees retain sole discretion on using volunteer monitoring or patrol programs to augment their inspection programs. The Copermittees also retain sole discretion to stipulate conditions (insurance, training, etc.) for which a volunteer monitoring or patrol program must comply in order assist them with inspections.</p>	

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E5-2 PROVISION E.5: Existing Development Management	
	<p>COMMENT: <i>Requests for modifications to existing development inventory and tracking requirements.</i></p> <p>The San Diego County Copermittees and City of Santee each requested removal of ‘mobile home parks’ from the list of residential areas that should be included in its existing development inventory, citing the Mobile Home Park Act preempts a municipality’s ability to regulate within the mobile home park. The Copermittees further requested modification to the language of Provision E.5.a to replace the phrase ‘may discharge pollutants’ with ‘has the reasonable potential to discharge pollutants,’ claiming that the term ‘may’ is too broad and limits the Copermittees’ ability to focus on those sites in their inventories identified as jurisdictional and watershed priorities. A specific comment was submitted by the City of Chula Vista asking that the Tentative Order allow use of more than one data management system to track the required information.</p>
	<p>Copermittees City of Chula Vista City of Santee San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board understands that a city does not have full access to regulate mobile home parks pursuant to the Mobile Home Park Act, but disagrees that the Copermittees do not have the legal authority to regulate discharges from and require BMPs at mobile home parks to their MS4s.</p> <p>The requirements of the Tentative Order are that each Copermittee maintain an inventory of its existing development that may discharge a pollutant load to and from the MS4. If a Copermittee has mobile home parks in its jurisdiction it must be included in its inventory so that the mobile home park gets considered in the Water Quality Improvement Plan priorities and strategies to address sources of pollutants. The comments included a description of what a city is allowed to regulate via its police powers, at mobile home parks. This list included access ‘streets and roads’ and parking. These are areas where potentially BMPs could be located if, through the Water Quality Improvement Plan process, it was determined that pollutants discharged from mobile home parks were a high priority water quality condition. Additionally, other scenarios could exist where discharges from mobile home parks are not considered a high priority, and inspections would occur much less often. Therefore, mobile home parks must remain within a Copermittee’s existing development inventories, but can be dealt with according to the priorities, schedules and goals of the Water Quality Improvement Plan. Therefore, no change to the Tentative Order was made.</p> <p>The San Diego Water Board disagrees with the comment that the term ‘may’ should be replaced with ‘reasonable potential.’ The term ‘may’ is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term reasonable potential can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility possibly or probably discharges a pollutant load into its MS4. Nothing in</p>

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E5-2	PROVISION E.5: Existing Development Management
	<p>the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for pollutant loads to be discharged from its inventoried existing facilities or areas. Therefore, no change to the Tentative Order was made.</p> <p>The use of a GIS database to track inventoried facilities is only “highly recommended” in the Tentative Order, it is not explicitly required. Therefore a Copermittee can use one or more than one data management system to track the required information.</p>

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E5-3 PROVISION E.5: Existing Development Management	
<p>COMMENT: <i>Requests for modifications to existing development BMP implementation and maintenance requirements.</i></p> <p>The Riverside County and San Diego County Copermittees submitted comments requesting a modification to the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4. Commenters further suggest clarifying language for the required use of pollutant prevention methods (i.e. designated BMPs) in Provision E.5.b.</p> <p>A specific comment was made by the City of Chula Vista to removed 'freeways' from list of existing facilities the Copermittees are required to properly operate and maintain BMPs. The City of Chula Vista notes that freeways are under the jurisdiction of Caltrans, not a city.</p>	<p>Copermittees City of Chula Vista Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the commenters request to modify the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4.</p> <p>Provision E.5.b states that each Copermittee must designate a minimum set of BMPs required for all inventoried existing development, including special event venues. Any existing development that gets inventoried has been identified as a facility that may generate pollutant loads to and from the MS4 under Provision E.5.a. Therefore, if a facility is on the inventory, a Copermittee has already made the determination that the existing development possibly or probably generates a pollutant load. Therefore, no change to the Tentative Order was made.</p> <p>The San Diego Water Board agrees with the requests to clarify the language in Provisions E.5.b.(1)(b) and (d) to specify when a Copermittee must require implementation of BMPs at inventoried existing development not owned by the Copermittee, and when a Copermittee must implement BMPs on their own municipal facilities.</p> <p>The San Diego Water Board also agrees with the City of Chula Vista's request to remove 'freeways' from the list of existing facilities the Copermittees are required to properly operate and maintain BMPs.</p>	

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E5-4 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Requests for modifications to existing development inspection requirements.</i></p> <p>The County of San Diego commented on the need for an exemption from the minimum annual inspection requirement of 20 percent for inventoried linear municipal facilities. Riverside County Copermitees requested the requirement to inspect at least 20 percent of its existing development inventory be deleted.</p> <p>The Tentative Order requires each inventoried existing development be inspected once every five years. Both San Diego County and Riverside County Copermitees commented on this minimum. San Diego County Copermitees want it changed to once per permit term, conversely Riverside County Copermitees support existing language of once per five years. The USEPA does not support relaxation to inspection frequencies because it weakens enforceability and the ability to determine compliance.</p> <p>The San Diego County Copermitees requested clarifying language be added to what must be included in a visual inspection of existing development.</p>	<p>Copermitees County of San Diego Riverside County Copermitees San Diego County Copermitees State and Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the County of San Diego’s comment concerning the need for exempting linear municipal facilities from the existing development annual inspection requirements due to the number of inspections required if such facilities are considered when calculating 20 percent of the existing development inventory. To address their comments, the language in Provision E.5.c.(1)(a)(iv) includes a footnote, which excludes linear municipal facilities (i.e. MS4 linear channels, sanitary sewer collections systems, streets, roads, and highways). MS4 inlets and basins are not mentioned in this footnote and are still required to be considered when determining 20 percent of inventoried development for the purposes of annual inspections. The San Diego Water Board expects MS4 inlets and basins to be inspected in order to confirm that BMPs are being implemented and maintained to reduce the discharge of pollutants in storm water from the MS4 to the MEP. Comments provided by the USEPA support leaving MS4 inlets and basins in the existing development inventory to strengthen permit enforceability and compliance determinations.</p> <p>The San Diego Water Board kept the existing development minimum inspection requirement of once every five years. This requirement is consistent with comments received by USEPA to include minimum requirements to strengthen permit enforceability and compliance determinations.</p>	

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E5-5 PROVISION E.5: Existing Development Management	
	<p>COMMENT: <i>Requests to limit existing development requirements to existing development with "reasonable potential" to discharge pollutants.</i></p> <p>The San Diego County Copermittees requested the existing development requirements be limited to those existing facilities and areas of development with "reasonable potential" to discharge pollutants.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that replacing the term 'may' with the phrase 'reasonable potential' in Provisions E.5.a-c will give a Copermittee more flexibility to focus on jurisdictional and watershed priorities. The Water Quality Improvement Plan will establish the priority water quality conditions within a Watershed Management Area to which a Copermittee will customize its jurisdictional program (i.e. inspection location and frequencies, pollutant reduction efforts (BMP implementation), retrofit opportunities, etc.).</p> <p>The term 'may' is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term 'reasonable potential' can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility or developed area possibly or probably discharges a pollutant load into its MS4. Nothing in the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for existing development to discharge pollutant loads to and from the MS4. Therefore, no change to the Tentative Order was made.</p>

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E5-6 PROVISION E.5: Existing Development Management		
	<p>COMMENT: Request to allow the Copermitees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.</p> <p>The San Diego County Copermitees requested an addition to the requirements of Provision E.5.e to allow the Copermitees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request and no change to the Tentative Order was made.</p> <p>Temporarily suspending the monitoring requirements of Provision D to fund a retrofit and/or rehabilitation process is inappropriate. The monitoring requirements in Provision D are the minimum necessary for the Copermitees to demonstrate that the water quality improvement strategies being implemented as part of the Water Quality Improvement Plan are making progress toward achieving the numeric goals.</p>	

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E5e2-1 PROVISION E.5.e.(2): Retrofitting Areas of Existing Development	
	<p>COMMENT: <i>Retrofit existing development to improve water quality.</i></p> <p>The San Diego Green Building Council and South Laguna Civic Association support retrofitting areas of existing development as a means to achieve mandated water quality objectives.</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters and has developed requirements to encourage retrofitting to achieve reductions in pollutants discharged from MS4s and improved water quality conditions in the receiving waters.</p>
	<p>Building Industry / Industry San Diego Green Building Council Environmental Organizations South Laguna Civic Association</p>

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E5e2-2 PROVISION E.5.e.(2): Retrofitting Areas of Existing Development	
	<p>COMMENT: <i>Requests to remove or modify retrofitting of existing development requirements.</i></p> <p>The Riverside County Copermittees generally requested the removal of the retrofit and stream/channel/habitat rehabilitation project requirements. However, the Riverside County Copermittees also submitted requests for specific retrofit language changes.</p>
	<p>Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests to remove or modify the retrofitting of existing development requirements.</p> <p>The San Diego Water Board reviewed the requested language changes and did not make any of the revisions recommended as they were not necessary or changed the intent of the requirement.</p> <p>The requirements in the Tentative Order do not require any Copermittee to implement or require the implementation of a retrofitting project. The Tentative Order requires each Copermittee to describe a program that identifies those areas (public, private, or both) as good candidates for retrofitting. In areas where retrofitting projects within certain areas of existing development cannot be implemented by the Copermittee because of ownership (i.e. private property) or permitting, the Copermittee must develop strategies to facilitate the implementation of retrofitting projects if and when the opportunities become available.</p> <p>The San Diego Water Board did not remove or modify the requirements of Provision E.5.e.(2), but the requirements are now under Provision E.5.e.(1) in the revised Tentative Order.</p>

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E5e3-1 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: <i>Rehabilitate receiving waters to improve water quality.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for rehabilitating high value coastal receiving waters to improve water quality.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees with the commenters that rehabilitation of coastal wetlands and estuaries are important to the improvement of water quality within the San Diego Region.</p>	

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E5e3-2 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: <i>Create map to identify creeks and coastal receiving waters impacted by discharges from storm drains and candidate areas for restoration.</i></p> <p>The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The commenters also supported identifying degraded land elements, offending storm drain outlets and candidate areas for re-forestation and estuarine/coastal restoration.</p>	<p>Environmental Organizations Laguna Bluebelt Coalition South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board agrees that maps identifying candidate areas for restoration would be useful.</p> <p>The Copermittees have been provided an opportunity to create maps to assist in their efforts to comply with the requirements of the Tentative Order. Specifically, the Copermittees will have the option to generate a map and list of candidate projects, including stream, channel and habitat rehabilitation projects, which could potentially be used as alternative compliance options for Priority Development Projects, to be implemented in lieu of onsite structural BMP performance requirements. The optional Watershed Management Area Analysis is provided in Provision B.3.b.(4).</p>	

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E5e3-3 PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development		
	<p>COMMENT: Request for modifications to existing development stream, channel and/or habitat rehabilitation requirements.</p> <p>The Orange County Copermittees requested a modification to the requirements of Provision E.5.e.(3) to allow a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction. The Orange County Copermittees also requested the removal of Provision E.5.e.(3)(a) requiring each Copermittee to identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation.</p>	<p>Copermittees Orange County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>The requirements of Provision E.5.e.(3) are to be implemented by each Copermittee within its jurisdiction. Allowing a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction is not appropriate for this requirement. The Copermittee will, however, be able to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction as potential alternative compliance options for Priority Development Projects if the Copermittees in the Watershed Management Area perform the optional Watershed Management Area Analysis and include it in the Water Quality Improvement Plan.</p> <p>The removal of Provision E.5.e.(3)(a) is not appropriate because without this requirement, the subsequent requirements could not be implemented by the Copermittee.</p> <p>The San Diego Water Board did not modify the requirements of Provision E.5.e.(3), but the requirements are now under Provision E.5.e.(2) in the revised Tentative Order.</p>	

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E6-1 PROVISION E.6: Enforcement Response Plans	
	<p>COMMENT: <i>Specify criminal penalties are limited to intentional or criminally negligent acts.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting Provision E.6.b.(5) be modified to specify criminal penalties are limited to intentional or criminally negligent acts.</p>
	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the revision is necessary.</p> <p>Provision E.6.b requires each Copermittee to list the enforcement response approaches that the Copermittee will implement within its jurisdiction to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Copermittee may specify in its Enforcement Response Plan that criminal penalties are limited to intentional or criminally negligent acts.</p> <p>The San Diego Water Board did not revise Provision E.6.b.(5).</p>

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E6-2	PROVISION E.6: Enforcement Response Plans	
	<p>COMMENT: <i>Notification to San Diego Water Board for "escalated" enforcement should be consistent with Construction General Permit.</i></p> <p>The Riverside County and San Diego County Copermitees each submitted comments requesting Provision E.6.e.(1) be modified to be consistent with the notification requirements of the Construction General Permit.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>Provision E.6.e.(1) has been revised as requested.</p>	

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E6-3 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Revise the term "escalated enforcement" to "progressive enforcement."</i></p> <p>The Orange County and Riverside County Copermitees each submitted comments requesting Provision E.6.d be modified to be "Progressive Enforcement" instead of "Escalated Enforcement" because the term is more appropriate.</p>	<p>Copermitees Orange County Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermitees are expected to implement "progressive enforcement" in all cases of enforcement. For enforcement issues that are associated with the highest priority water quality conditions identified by the Copermitees in the Watershed Management Area, the Copermitees are expected to implement the enforcement more swiftly, meaning escalating its enforcement measures and resources to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order as soon as possible. The term "escalated enforcement" correctly reflects this added level of urgency and focus to compel compliance.</p> <p>The San Diego Water Board did not revise Provision E.6.d.</p>	

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E6-4 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Allow the Copermittees to utilize existing guidelines and procedures for enforcement.</i></p> <p>The Orange County and Riverside County Copermittees each submitted comments requesting the introductory paragraph of Provision E.6 be modified to specify that a Copermittee may utilize and implement established, equivalent guidelines and procedures for enforcement.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermittees are allowed to utilize and implement their existing procedures if they meet the requirements of Provision E.6. Provision E.6, however, requires each Copermittee to develop an Enforcement Response Plan, included as part of its jurisdictional runoff management program document, which the San Diego Water Board and the public may utilize to determine if the Copermittee is indeed implementing its enforcement program according to its procedures. The Enforcement Response Plan is expected to be a tool the Copermittee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermittee within its jurisdiction.</p> <p>The San Diego Water Board did not revise the introductory paragraph to Provision E.6.</p>	

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E7a-1	PROVISION E.7.a: Public Education	
	<p>COMMENT: <i>Requests for modifications to public education requirements.</i></p> <p>The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E.7.a be modified to allow the Copermittees to focus their public education efforts on the highest priority water quality conditions, and remove or reduce the emphasis in the language that focuses on pesticides, herbicides and fertilizers.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requested modifications.</p> <p>The public education requirements under Provision E.7.a provide the Copermittees the flexibility to focus their public education efforts on the highest priority water quality conditions, while being consistent with federal regulations.</p> <p>Provision E.7.a.(1) is consistent with 40CFR122.26(d)(2)(iv)(A)(6), which requires each Copermittee to provide “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include...educational activities...” Provision E.7.a.(1) has been expanded to include “other pollutants of concern...as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the highest priority water quality conditions...” To be consistent with 40CFR122.26(d)(2)(iv)(A)(6), however, each Copermittee must have a program of educational activities to reduce pollutants associated with pesticides, herbicides and fertilizers to the MEP.</p> <p>The San Diego Water Board did not modify Provision E.7.a.</p>	

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E8-1 PROVISION E.8: Fiscal Analysis	
	<p>COMMENT: <i>Request to remove requirement to secure resources to meet requirements of the Tentative Order.</i></p> <p>The Riverside County Copermitees requested that Provision E.8.a, requiring each Copermitee to secure the resources necessary to meet all the requirements of the Order, be removed. The Riverside County Copermitees assert this requirement exceeds the requirements of the Clean Water Act.</p>
	<p>Copermitees Riverside County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Copermitees are responsible for securing the resources necessary to meet the requirements of the Tentative Order. Without securing the resources necessary to meet all requirements of the Tentative Order, the Copermitee would be unable to meet the requirements of the Tentative Order.</p> <p>Additionally, CWA section 402(p)(3)(B)(iii) requires that NPDES permits for storm water discharges from MS4s to “<i>require controls to reduce the discharge of pollutants [in storm water] to the maximum extent practicable [MEP], including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.</i>” The requirement for each Copermitee to secure the resources necessary to meet all the requirements of the Order is considered “<i>such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.</i>”</p> <p>The San Diego Water Board did not remove the requirement.</p>

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F1-1 PROVISION F.1: Water Quality Improvement Plans	
<p>COMMENT: <i>Requests for modifications to Water Quality Improvement Plan development process and schedule.</i></p> <p>Comments from the Building Industry and the Copermitees requested modifications to the schedules for developing and updating the Water Quality Improvement Plans. Generally, the requests were for more time because of several different factors. The San Diego County Copermitees also requested several modifications to the content of the submittal required for each element of the Water Quality Improvement Plan.</p> <p>Comments from the Environmental Groups and USEPA were primarily concerned with the public participation process during the development of the Water Quality Improvement Plans. The concern was that the requirements of the Tentative Order did not allow for enough public participation, and they requested that additional opportunities be provided during the Water Quality Improvement Plan development and updates. The Environmental Groups also requested that the Water Quality Improvement Plans be required to be developed consecutively instead of concurrently.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p> <p>Copermitees Orange County Copermitees Riverside County Copermitees San Diego County Copermitees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to provide additional time to develop the Water Quality Improvement Plans, but disagrees with requiring the Water Quality Improvement Plans to be developed consecutively instead of concurrently. The San Diego Water Board also agrees with including additional opportunities for public participation during the Water Quality Improvement Plan development and update processes.</p> <p>The San Diego Water Board has modified the requirements of Provision F.1 to provide the Copermitees up to 24 months, instead of 18 months, to develop the Water Quality Improvement Plans. The schedules for developing and submitting the elements of the Water Quality Improvement Plan have also been modified to provide additional time, and additional flexibility to stagger the development of the Water Quality Improvement Plans to provide the public sufficient opportunity to provide data, information and recommendations.</p> <p>Please also see the response to comment B-3.</p>	

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F3b-1	PROVISION F.3.b: Annual Reports	
	<p>COMMENT: <i>Recommendations for modifications to Annual Report requirements.</i></p> <p>Several commenters provided recommendations for modifications to the Annual Report requirements to clarify the requirements, include different requirements, or remove requirements.</p> <p>Ecolayers and the San Diego County Copermittees are concerned with the requirements related to uploading data to the California Environmental Data Exchange Network (CEDEN). Uploading data to CEDEN is not necessary according to Ecolayers. The Copermittees would like to limit the data uploads only to data generated by the Copermittees and not third parties.</p> <p>The Orange County, Riverside County, and San Diego County Copermittees all expressed concern about the transitional reporting period between the time the Tentative Order becomes effective and the date that the first Water Quality Improvement Plan Annual Reports are required. The Orange County Copermittees also expressed concern with the use of the Jurisdictional Runoff Management Program Annual Report Form (Form) in Attachment D to the Tentative Order. The Orange County Copermittees requested continuing the use of the current jurisdictional runoff management program annual reporting format instead of the Form.</p> <p>The Environmental Groups also expressed concern with the Form. The Environmental Groups are concerned that the Form would not adequately reflect the activities that each Copermittee was implementing within its jurisdiction and allow the public to understand how the Copermittees were implementing effective water quality improvement strategies.</p>	<p>Copermittees Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>Other Entities Ecolayers</p>
	<p>RESPONSE: The San Diego Water Board agrees that modifying the Annual Report requirements is necessary to clarify transitional reporting requirements and Water Quality Improvement Plan reporting requirements. The San Diego Water Board does not agree that uploading data to CEDEN is unnecessary. Finally, the San Diego Water Board disagrees with replacing the Form with the current jurisdictional runoff management program annual reporting format.</p> <p>The San Diego Water Board has revised the Annual Report requirements under Provision F.3.b to include (1) Transitional Jurisdictional Runoff Management Program Annual Reports, (2) Transitional Monitoring and Assessment Program Annual Reports, and (3) Water Quality Improvement Plan Annual Reports. The Transitional Jurisdictional Runoff Management Program Annual Reports and Transitional Monitoring and</p>	

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F3b-1	PROVISION F.3.b: Annual Reports	
	<p>Assessment Program Annual Reports will be submitted by the Copermittees until the first Water Quality Improvement Plan Annual Reports are required.</p> <p>The Form is required for each Copermittee within each Watershed Management Area during the transitional reporting permit. Each Copermittee has the option to continue utilizing the current jurisdictional runoff management program annual reporting format in addition to the Form until the Water Quality Improvement Plan Annual Reports are required. The Form will continue to be required as part of the Water Quality Improvement Plan Annual Reports, but they are expected to be included as an appendix or attachment to the report.</p> <p>The San Diego Water Board will review the Forms to ensure that the Copermittees have certified that they are implementing their jurisdictional runoff management programs in compliance with the requirements. The San Diego Water Board will also utilize the Forms during audits of the Copermittees' jurisdictional runoff management programs and their records.</p> <p>The Water Quality Improvement Plan Annual Reports will provide the information that the Environmental Groups are interested in seeing as part of the annual reporting requirements. Provision F.3.b.(3)(d) requires each Copermittee to report the water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period.</p> <p>Finally, the San Diego Water Board has not removed the requirements to upload data to CEDEN, but has limited the data that is required to be uploaded to CEDEN to just data generated by the Copermittees.</p>	

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F3c-1 PROVISION F.3.c: Regional Monitoring and Assessment Report		
	<p>COMMENT: <i>Requests for modifications to Regional Monitoring and Assessment Report requirements.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted requests for modifications to the Regional Monitoring and Assessment Report requirements.</p> <p>The Riverside County Copermittees recommended aligning the requirements with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees recommended removing the requirement for the Regional Monitoring and Assessment Report as it appears to be duplicative with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees also requested, if the Regional Monitoring and Assessment Report requirements remain, that data uploaded to the Regional Clearinghouse be limited only to data generated by the Copermittees and not third parties.</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the requests to modify the Regional Monitoring and Assessment Report requirements. The San Diego Water Board agrees with limiting the data uploaded to the Regional Clearinghouse only to data generated by the Copermittees.</p> <p>The Regional Monitoring and Assessment Report is for the entire San Diego Region, not specific to each Watershed Management Area. The Regional Monitoring and Assessment Report may utilize the findings from the Integrated Assessments of the Water Quality Improvement Plans, but the Regional Monitoring and Assessment Report is intended to provide a “snapshot” of the conditions of the entire San Diego Region.</p> <p>The San Diego Water Board did not remove Provision F.3.c from the requirements. The San Diego Water Board did, however, revise Provision F.3.c.(3) to limit the data that is required to be uploaded to the Regional Clearinghouse to just data generated by the Copermittees.</p>	

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F4-1 PROVISION F.4: Regional Clearinghouse		
	<p>COMMENT: Request to allow the Copermittees to utilize existing mechanisms and linkages as part of the Regional Clearinghouse.</p> <p>The Orange County and San Diego County Copermittees each submitted comments requesting the requirements in Provision F.4 be modified to allow the Copermittees to utilize their existing web-based systems. The Orange County and San Diego County Copermittees requested that language be added to Provision F.4 that specifies a Copermittee may elect to develop and maintain clearinghouses provided by other Copermittees or agencies.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees that the Copermittees should be allowed to utilize their existing web-based systems.</p> <p>Provision F.4.a allows the Copermittees to link the Regional Clearinghouse “to other internet-based data portals and databases where the original documents are stored.” The Regional Clearinghouse, however, must be a single website that is linked to the other web-based systems. Provision G.2.d requires the Principal Watershed Copermittees to coordinate and develop the Regional Clearinghouse.</p> <p>The San Diego Water Board has added a footnote to the opening paragraph of Provision F.4 as requested by the San Diego County Copermittees, which is consistent with the language requested by the Orange County Copermittees.</p>	

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G-1 PROVISION G: PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES	
G-1	<p>COMMENT: <i>Request for "clarifications" of Copermittee responsibilities.</i></p> <p>The San Diego County Copermittees requested that Provision G "clarifies" that all Copermittees have some responsibilities to implement the requirements of the permit, not just the Principal Watershed Copermittees. The San Diego County Copermittees also requested removal of the language recommending that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.</p>
	<p style="text-align: right;">Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees to clarify that all Copermittees are responsible for implementing the requirements. The San Diego Water Board disagrees that it is necessary to remove the recommendation that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.</p> <p>Provision G states that an individual Copermittee "should not" be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. "Should not" indicates that it is a recommendation, not a requirement. The recommendation has been included to express the San Diego Water Board's desire for, as well as encourage, more Copermittees to assume leadership positions in developing Water Quality Improvement Plans and coordinating water quality improvement strategies among Copermittees in a Watershed Management Area and in the San Diego Region. The recommendation is not a requirement. Removal of a recommendation is not necessary.</p> <p>The San Diego Water Board has added Provision G.3 to specify that the Principal Watershed Copermittees are not responsible for ensuring that the other Copermittees in the Watershed Management Area are in compliance with the requirements, and that each Copermittee is responsible for implementing the requirements of the Tentative Order.</p>

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H-1 PROVISION H: MODIFICATION OF PROGRAMS		
	<p>COMMENT: <i>Request for an explicit re-opener provision in permit for TMDLs.</i></p> <p>The Orange County and San Diego County Copermittees and several individual Copermittees requested an explicit re-opener provision be included in the Tentative Order for when TMDLs may be amended.</p>	<p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has revised Provision H.4 to explicitly state when the San Diego Water Board will re-open the Order for modifications. Provision H.4.c explicitly states that the San Diego Water Board will re-open the Order if any of the TMDLs in Attachment E are amended in the Basin Plan by the San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA.</p>	

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H-2 PROVISION H: MODIFICATION OF PROGRAMS	
<p>COMMENT: <i>Request to include language that the permit may be amended outside of the Water Quality Improvement Plan process.</i></p> <p>The San Diego County Copermittees have requested the San Diego Water Board include language in Provision H.3 that explicitly states the Tentative Order may be modified outside of the Water Quality Improvement Plan development and implementation process. The San Diego County Copermittees indicated that there may be frequent modifications to the permit requirements based on the Water Quality Improvement Plan development and implementation process.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Tentative Order has been structured to allow the iterative and adaptive management process to occur within the Water Quality Improvement Plan development and implementation process. The San Diego Water Board does not anticipate any need to modify the Order's requirements as a result of the implementation of the Water Quality Improvement Plans.</p> <p>In the event that the Order's requirements do need to be modified, the language currently in Provision H.3 is adequate for this purpose. Thus, the San Diego Water Board did not revise Provision H.3 as requested by the San Diego County Copermittees.</p>	

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AttA-1 ATTACHMENT A: Discharge Prohibitions and Special Protections		
	<p>COMMENT: <i>Requests for modifications to Areas of Special Biological Significance (ASBS) Special Protections requirements.</i></p> <p>San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision I.A.1.e.(2)(ii) of the Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges (Special Protections) in Attachment A to the Order. San Diego Gas and Electric and Southern California Gas Company requested Provision I.A.1.e.(2)(ii) be revised to include a reference to Finding 32 of the Order to be consistent with their comments regarding authorized non-storm water discharges to MS4s that discharge to ASBS (see comment Fnd-14).</p>	<p>Building Industry / Industry San Diego Gas and Electric Southern California Gas Company</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Special Protections in Attachment A to the Tentative Order were adopted under Resolution No. 2012-0012 by the State Water Board, and are provided verbatim as a reference. Revising the provisions of the Special Protections, which are part of a resolution issued by the State Water Board, is not appropriate or necessary.</p> <p>The San Diego Water Board did not revise the Special Protections in Attachment A.</p>	

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AttB-1 ATTACHMENT B: Standard Permit Provisions and General Provisions	
<p>COMMENT: <i>Requests for modifications to Standard Permit Provisions.</i></p> <p>The Riverside County and San Diego County Copermitees each submitted comments requesting Standard Permit Provision 1.m be removed from the Standard Permit Provisions in Attachment B. The Copermitees are concerned that the bypass provisions of Standard Permit Provision 1.m would require the Copermitees to notify the San Diego Water Board whenever there is an anticipated or unanticipated bypass of storm water treatment BMPs.</p>	<p>Copermitees Riverside County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Standard Permit Provisions in Attachment B are required to be included in all NPDES permits. Thus, it is inappropriate to remove any of the Standard Permit Provisions.</p> <p>Standard Permit Provision 1.m(1)(a) defines a bypass as the intentional diversion of waste streams from any portion of a treatment facility. As most storm water treatment BMPs are not expected to be attended and expected to operate without oversight, there are unlikely to be “intentional” diversions of waste streams. If, however, one or more Copermitees operate a storm water treatment control BMP that requires an “intentional” diversion of the waste stream, the San Diego Water Board expects the Copermitee(s) to comply with the requirements of Standard Permit Provision 1.m.</p> <p>The San Diego Water Board did not revise the Standard Permit Provisions in Attachment B.</p>	

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AttB-2 ATTACHMENT B (Standard Permit Provisions and General Provisions)	
<p>COMMENT: <i>Requests for "clarifications" to the General Provisions.</i></p> <p>The Riverside County and San Diego County Copermittees each submitted comments requesting "clarifications" to the General Provisions in Attachment B. The Copermittees requested that General Provision 2.h include language that specifies the Copermittees are not responsible for pollutants in its MS4 discharges originating from an NPDES-permitted non-storm water discharge. The Copermittees also requested that recordkeeping requirements of General Provision 2.i.(2) be deleted or revised to be consistent with Standard Permit Provision 1.j.(2).</p>	<p>Copermittees Riverside County Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the requests.</p> <p>Discharges to the Copermittees' MS4s authorized by a separate NPDES permit do not have to be prohibited, as specified in the requirements of Provisions A.1.b and E.2. The Copermittees, however, are responsible for identifying the sources of the discharges from its MS4 if it causes or contributes to exceedances of water quality standards in receiving waters. Please see the response to comment E2-3.</p> <p>The recordkeeping requirements of General Provision 2.i.(2) are not inconsistent with Standard Permit Provision 1.j.(2). Standard Permit Provision 1.j.2 requires records to be kept for a minimum of 3 years unless the San Diego Water Board extends this period, consistent with the Code of Federal Regulations requirement. The San Diego Water Board has extended the recordkeeping requirements of Standard Permit Provision 1.j.(2) with General Provision 2.i.(2) to a period of 5 years. Thus, there is no conflict or inconsistency.</p> <p>The San Diego Water Board did not revise the General Provisions in Attachment B.</p>	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
	<p>COMMENT: <i>Requests for additional or modified definitions.</i></p> <p>Several comments were submitted by the Copermittees and Building Industry / Industry requesting modifications to existing definitions and/or the addition of new definitions to Attachment C to the Tentative Order.</p>
	<p>Building Industry / Industry BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company</p> <p>Copermittees City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board reviewed and considered the requested modifications to existing definitions and additional definitions.</p> <p>Where the San Diego Water Board determined a modification to a definition requested by a commenter was appropriate and necessary to clarify a definition or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision. Where the San Diego Water Board determined the addition of a definition requested by a commenter was appropriate and necessary, the San Diego Water Board added the definition. In several cases, the requested modification or addition was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not modify or add the definition as requested.</p> <p>Please see Attachment C in the revised Tentative Order to see the revisions that were made.</p>

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Link compliance with TMDL requirements to development and implementation of Water Quality Improvement Plans.</i></p> <p>The San Diego County Copermittees submitted comments requesting that the development and implementation of the Water Quality Improvement Plans be a compliance mechanism for the TMDL requirements of Attachment E. The San Diego Unified Port District submitted separate comments in support of the request. The Orange County Copermittees submitted comments requesting that Provision A.1 and A.2 include language that specifies that compliance with the discharge prohibitions and receiving water limitations will be achieved through implementing the requirements of Attachment E.</p> <p>Comments from Environmental Groups were not in support of allowing compliance with the TMDL requirements through a “reasonable assurance analysis” included in the Water Quality Improvement Plan.</p>	<p>Copermittees City of San Diego Orange County Copermittees San Diego County Copermittees San Diego Unified Port District</p> <p>Environmental Organizations Environmental Groups</p>
<p>RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees. The San Diego Water Board disagrees with the comments from the Environmental Groups.</p> <p>The San Diego Water Board acknowledges that monitoring all MS4 outfalls or all receiving waters at all times to demonstrate compliance with the final WQBELs is difficult, likely to be cost prohibitive, and likely to be infeasible. Thus, the San Diego Water Board has included an option to the Compliance Determination requirements allowing the utilization of the Water Quality Improvement Plan to demonstrate compliance with the interim and final TMDL requirements. The compliance determination option provides the Copermittees a mechanism through an analysis to demonstrate that there is “reasonable assurance” that the interim and final numeric WQBELs are being achieved through the implementation of BMPs. Because the Water Quality Improvement Plans will undergo a public participation and review process, the San Diego Water Board is confident that a Water Quality Improvement Plan that includes such an analysis will allow the Copermittees to demonstrate that the final TMDL requirements are being achieved and will be acceptable to the public and the San Diego Water Board.</p> <p>For the interim TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance by implementing a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, with a “reasonable assurance” that the implementation of the BMPs will achieve the interim TMDL WQBELs within the interim compliance dates. The Copermittees will be provided considerable flexibility for</p>	

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
<p>demonstrating compliance with achieving the interim WQBELs.</p> <p>For the final TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance with the final WQBELs by implementing a Water Quality Improvement Plan that includes an analysis to demonstrate that the implementation of the BMPs required by the TMDL achieves compliance with one or more of the final numeric WQBELs. The Water Quality Improvement Plan must include monitoring and assessments to confirm that the Water Quality Improvement Plan is achieving the final TMDL requirement. The San Diego Water Board must accept and continue to accept the Water Quality Improvement Plan and analysis, and the Copermittees must continue to implement the BMPs and demonstrate through the analysis that the final numeric WQBELs are being achieved.</p>

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Requests for including TMDL requirements consistent with the TMDLs as developed or "as originally intended."</i></p> <p>Several Copermitees submitted comments that the TMDLs have not been incorporated "as originally written and intended" or somehow inconsistent with the TMDLs as they were developed. The Orange County Copermitees specifically referred to the Baby Beach Bacteria TMDLs and the Beaches and Creeks Bacteria TMDLs, noting examples that they identified as "inconsistent" with the TMDLs in the Basin Plan.</p> <p>A comment from Clean Water Now seemed to imply that there was some inconsistencies present in the TMDL requirements "in light of recent legal renderings" though no specific legal interpretations or decisions were provided.</p> <p>The USEPA noted that the Beaches and Creeks Bacteria TMDLs included additional WLAs and compliance endpoints that were not included in Attachment E.</p>	<p>Copermitees City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermitees San Diego Unified Port District</p> <p>Environmental Organizations Clean Water Now</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board disagrees that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended."</p> <p>The comments from the Copermitees and USEPA noted that several aspects of the TMDLs as they are in the Basin Plan are not included in the Tentative Order. The omission of those aspects of the TMDLs, however, does not mean that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended." The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermitees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the</p>	

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
<p>TMDLs in the Basin Plan are essentially “instructions” for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the “instructions” provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Nonetheless, the San Diego Water Board has revised the TMDL requirements in Attachment E to include some of the additional aspects of the TMDLs as developed and included in the Basin Plan. Please see the following responses to comments pertaining to Attachment E.</p>

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AttE-3 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Objections with how the Water Quality Based Effluent Limitations are included or expressed in the Tentative Order.</i></p> <p>The Orange County and San Diego County Copermittees each submitted comments that objected to how the WQBELs for the TMDLs in Attachment E are included or expressed.</p> <p>The San Diego County Copermittees object to including receiving water limitations as a component of the WQBELs, and requested a clearer linkage between receiving water limitations and effluent limitations. The Orange County Copermittees had a similar objection. The San Diego County Copermittees also requested that the WQBELs expressed as effluent limitations specify that the concentration-based effluent limitations be applied on a watershed basis and not outfall by outfall.</p> <p>The Orange County Copermittees questioned the feasibility of the numeric WQBELs, and asserted that compliance with WQBELs should be based on implementation of BMPs. The Orange County Copermittees assert that a Reasonable Potential Analysis (RPA) is required before including WQBELs into the permit. The Orange County Copermittees also assert that the WQBELs for the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs are not consistent with the assumptions and requirements of the WLAs.</p> <p>In contrast, the USEPA generally supported the San Diego Water Board's approach for incorporating the TMDL requirements into the Tentative Order.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3).</p> <p>The San Diego Water Board has incorporated (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the</p>	

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AttE-3 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
<p>Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Because there are TMDLs in the Basin Plan that have identified the MS4s as causing or contributing to exceedances of water quality standards, an RPA is not necessary to establish WQBELs. RPAs are only necessary if the San Diego Water Board decides to develop and incorporate WQBELs into an NPDES permit absent a TMDL.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>For the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs, the San Diego Water Board has not revised the concentration-based WQBELs, but has included WQBELs expressed as load-based effluent limitations. The Copermittees may utilize the load-based effluent limitations to demonstrate that the BMPs they are implementing are achieving their effluent limitations and not causing or contributing to exceedances of water quality standards in receiving waters. Please see the response to comment AttE-1.</p>

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AttE-4 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>COMMENT: <i>Recommendation to reorganize the Specific Provisions for the TMDLs.</i></p> <p>The San Diego County Copermittees recommended reorganizing the Specific Provisions of the TMDLs in Attachment E. To clearly outline the interim and final requirements and schedules, the San Diego County Copermittees recommended organizing the compliance dates, WQBELs, and compliance determination by final TMDL requirements and interim TMDL requirements.</p>
	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation.</p> <p>The San Diego Water Board reorganized the Specific Provisions for the TMDLs in Attachment E as recommended.</p>

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AttE-5 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: <i>The San Diego Water Board does not have the authority to establish TMDLs for non-pollutants (surrogates).</i></p> <p>The BIA Regulated Community Coalition requested that that San Diego Water Board revise the TMDLs to conform with a U.S. District Court for the Eastern District of Virginia decision that TMDLs could not be established to regulate non-pollutants as surrogates for pollutants.</p>	<p>Building Industry / Industry BIA Regulated Community Coalition</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the TMDLs need to be revised.</p> <p>The TMDLs in Attachment E are all based on reducing pollutant loads in MS4 discharges to ensure the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDLs in Attachment E do not establish any requirements to regulate non-pollutants as surrogates for pollutants.</p>	

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AttE6-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: Recommendation to add a provision to address TMDLs approved during the term of the Tentative Order.</p> <p>The USEPA recommended adding a provision to the requirements of the Tentative Order to address TMDLs approved during the term of the permit to expedite implementation of the TMDLs by the Copermittees.</p>	<p>State/Federal Government USEPA</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation.</p> <p>The San Diego Water Board has revised Provision F.2.c to include a requirement for the Copermittees to initiate an update to the applicable Water Quality Improvement Plans to incorporate the requirements of any TMDL Basin Plan amendments, applicable to the Copermittees, approved by the Office of Administrative Law and USEPA within the term of the Tentative Order.</p>	

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AttE1-1 ATTACHMENT E 1: Chollas Creek Diazinon TMDL	
<p>COMMENT: <i>Request to revise WQBELs for Chollas Creek Diazinon TMDL based on recalculated criteria.</i></p> <p>The San Diego County Copermittees assert that the Chollas Creek Diazinon TMDL is based on erroneous numeric targets due to an error discovered in the criteria used to develop the TMDL. The San Diego County Copermittees requested that the WQBELs for the Chollas Creek Diazinon TMDL be revised based on recalculated criteria, or remove the TMDL until the WQBELs can be “corrected.”</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request.</p> <p>The Chollas Creek Diazinon TMDL was incorporated into the Basin Plan in September 2003. Until the Basin Plan is revised to include the “corrected” criteria as part of the numeric targets, the San Diego Water Board is required to include the TMDL requirements in the Tentative Order consistent with the requirements of the TMDL in the Basin Plan.</p> <p>The criteria utilized in the development of the Chollas Creek Diazinon TMDL are more protective than the “corrected” criteria cited by the commenter. Implementation of the Chollas Creek Diazinon TMDL with the WQBELs consistent with the numeric targets in the TMDL in the Basin Plan is protective of the water quality standards in receiving waters.</p> <p>According to the commenter, the “corrected” criteria were discovered in 2004. The commenter has had almost 9 years to approach the San Diego Water Board to request a revision to the TMDL in the Basin Plan. If the commenter would like to revise the numeric targets of the TMDL in the Basin Plan, the commenter must approach the TMDL and Basin Planning staff of the San Diego Water Board to request the change. Requesting the change through the MS4 permit development process is not the appropriate forum.</p> <p>The WQBELs for the Chollas Creek Diazinon TMDL were not revised.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE2-1 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: Request to include San Diego Unified Port District as MS4 operator in SIYB Dissolved Copper TMDL.</p> <p>The City of San Diego requested that the San Diego Unified Port District be listed as a Responsible Copermitee under the dissolved copper TMDL for Shelter Island Yacht Basin.</p>	<p>Copermitees City of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that the San Diego Unified Port District should be listed as a Responsible Copermitee under the Shelter Island Yacht Basin dissolved copper TMDL.</p> <p>The Shelter Island Yacht Basin dissolved copper TMDL adopted under Resolution No. R9-2005-0019 only listed the City of San Diego as an owner or operator of an MS4 that discharges to Shelter Island Yacht Basin. The TMDL provides a wasteload allocation (WLA) of 30 kg/yr for MS4 discharges by the City of San Diego only.</p> <p>This means that if the San Diego Unified Port District does in fact have MS4 discharges to Shelter Island Yacht Basin, the TMDL currently has assigned MS4 discharges from the San Diego Unified Port District a WLA of 0 kg/yr. Any discharge of dissolved copper from MS4s owned or operated by the San Diego Unified Port District to Shelter Island Yacht Basin would be in violation of its WLA and WQBELs expressed as effluent limitations.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE2-2 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: <i>Request to revise WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL to include Water Effects Ratio.</i></p> <p>The San Diego County Copermittees noted that the Water Effects Ratio (WER) term was incorporated into the Chollas Creek Dissolved Metals TMDLs and requested that the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL include the WER term.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>The San Diego Water Board has included a WER multiplier to the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL. The WER is assumed to be 1.0 unless there is a site-specific and chemical-specific WER. The WER must be incorporated into the Basin Plan before it can be utilized in the calculation for the WQBELs expressed as receiving water limitations. The footnote includes this clarification.</p> <p>The San Diego Water Board also revised the footnotes for the WER term in the Chollas Creek Dissolved Metals TMDLs to clarify that the WER is assumed to be 1.0 unless a site-specific and chemical-specific WER is provided in the Basin Plan.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE2-3 ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
<p>COMMENT: <i>Revise Shelter Island Yacht Basin Dissolved Copper TMDL requirements to allow for BMP-based compliance.</i></p> <p>The San Diego County Copermittees requested that the Shelter Island Yacht Basin Dissolved Copper TMDL requirements be revised to allow for BMP-based compliance.</p>	<p>Copermittees San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option.</p> <p>Please see the response to comment AttE-1.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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AttE3-1 ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs	
<p>COMMENT: <i>Request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from the Tentative Order.</i></p> <p>The County of San Diego and San Diego County Copermittees requested the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs be removed from Attachment E to the Tentative Order. The Copermittees noted that the TMDL, as it is incorporated in the Basin Plan, only identified a wasteload allocation (WLA) for Caltrans. The TMDL only assigns load allocation (LAs) for land uses to the County of San Diego. The Copermittees assert that only requirements for WLAs can be incorporated into an NPDES permit.</p> <p>The San Diego County Copermittees also requested, if the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs are not removed from Attachment E, that one of the compliance determination options allow the Responsible Copermittee to demonstrate compliance by “using its legal authority to reduce nutrient discharges from the land uses identified...to the maximum extent practicable.”</p>	<p>Copermittees County of San Diego San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees with the request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board also disagrees with allowing compliance by only achieving MEP.</p> <p>The Basin Plan states in the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs, <i>“In the event that a nonpoint source becomes a permitted discharge, the portion of the load allocation that is associated with the source can become a wasteload allocation”</i> (page 7-17 of the Basin Plan). The Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs include several LAs that have been assigned to land uses that fall within the jurisdiction of the County of San Diego and discharge non-storm water and storm water to and from its MS4. Because these “nonpoint sources” are discharges subject to the requirements of an NPDES permit, they are permitted discharges. Thus they are effectively and appropriately considered WLAs that must be incorporated into the Tentative Order.</p> <p>The San Diego Water Board has revised and reorganized the format of the TMDL requirements in Attachment E, as requested by the Copermittees (see response to comment AttE-4). The reformatting and reorganization also resulted in the removal of the WLA term from the TMDL requirements. The introductory paragraph has been revised to specify that the TMDLs in Attachment E incorporate provisions that implement the LAs and WLAs applicable to discharges regulated under the Tentative Order.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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AttE3-1 ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs

The request by the Copermittees to include a compliance determination option of allowing compliance only by achieving MEP is not appropriate for a TMDL. TMDLs require the achievement of WQBELs when technology-based effluent limitations (TBELs) cannot achieve the attainment of water quality standards in receiving waters. The MEP standard is a TBEL. The Responsible Copermittee must achieve the WQBELs to either restore or protect water quality standards in receiving waters, or ensure discharges from the MS4 do not cause or contribute to exceedances of water quality standards in receiving waters.

The San Diego Water Board did not remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board did not include a compliance determination option that allows compliance only by achieving MEP.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE4-1 ATTACHMENT E 4: Chollas Creek Dissolved Copper, Lead, and Zinc TMDLs		
	<p>COMMENT: <i>Request to revise the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements to allow for BMP-based compliance.</i></p> <p>The San Diego County Copermittees requested that the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements be revised to allow for BMP-based compliance.</p>	<p>Copermittees San Diego County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option.</p> <p>Please see the response to comment AttE-1.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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AttE5-1 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the WQBELs of the Baby Beach and Shelter Island Shoreline Park Bacteria TMDL requirements to allow for load-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.</p>	<p>Copermittees Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs.</p> <p>Please see the responses to comment AttE-1 and AttE-3.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Water bodies no longer listed on the 303(d) List should not be required to implement or comply with the requirements of the Beaches and Creeks Bacteria TMDLs.</i></p> <p>The Orange County and San Diego County Copermitees and the Cities of Carlsbad, Del Mar and Encinitas submitted comments noting that the Beaches and Creeks Bacteria TMDLs included language that beach segments that were delisted from the 303(d) list are not subject to further action and not required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) as long as monitoring continues to support compliance with REC-1 water quality standards. The Copermitees requested that the Beaches and Creeks Bacteria TMDLs be modified so the beach segments that are not included on the 303(d) list are not required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements.</p>	<p>Copermitees City of Carlsbad City of Del Mar City of Encinitas Orange County Copermitees San Diego County Copermitees</p>
<p>RESPONSE: The San Diego Water Board disagrees that beach segments that are not on the 303(d) List should not be required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements.</p> <p>The Beaches and Creeks Bacteria TMDLs have been incorporated into the Basin Plan and apply to all the water bodies listed in the TMDL. The Copermitees cite the following from the introduction to the Beaches and Creeks TMDLs: <i>“Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards”</i> (Basin Plan page 7-60). This does not mean that the TMDLs do not apply to these segments, only that the current BMPs are working and additional actions (i.e. additional BMPs) are not necessary at this time.</p> <p>Under the TMDL Compliance Schedule for the Beaches and Creeks Bacteria TMDLs, the Basin Plan states: <i>“The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists”</i> (Basin Plan page 7-106). This means that the TMDLs apply to the entire Pacific Ocean Shorelines identified in the TMDL and is not only where there are beach segments that are listed on the 303(d) List. Thus, it does not matter if a particular segment has been delisted, the TMDLs still apply to the entire Pacific Ocean Shoreline identified in the TMDL.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs

The TMDL Compliance Schedule also states, *“In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List... If receiving water limitations are exceeded in the future in those locations, the BLRPs or CLRPs must include the implementation of a BMP program that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules.”* (Basin Plan page 7-106). The Basin Plan continues, *“For watersheds in Table 7-52 where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of these TMDLs. If, however, any segment of a waterbody for the watershed (Pacific Ocean shoreline, creek, or mouth as shown in Table 7-36) is re-listed on a future 303(d) List for any type of indicator bacteria, the Phase I MS4s and Caltrans will be required to submit a BLRP or CLRP within 6 months of the adoption of the 303(d) List by the San Diego Regional Board”* (page 7-107). This means that a BLRP or CLRP is not required by the Basin Plan to be submitted within 18 months of the effective date of the TMDLs, but it also does not mean that the San Diego Water Board cannot require a BLRP or CLRP to be submitted.

The Beaches and Creeks Bacteria TMDLs were developed when it was unknown when the Orange County and San Diego County MS4 Permits would be renewed to incorporate the requirements of the TMDLs. At the time the TMDLs were adopted, the Orange County MS4 Permit had just been renewed in 2009, and the San Diego County MS4 Permit was unlikely to be renewed before 2012. The San Diego Water Board wanted the implementation of the TMDLs to begin with the submittal of BLRPs or CLRPs, before the Orange County and San Diego County MS4 permits were expected to be renewed. Thus, the TMDL included the 18 month period of time for the Copermittees to develop the BLRPs or CLRPs to be required by the San Diego Water Board through an appropriate regulatory mechanism. The regulatory mechanism to compel the submittal of the BLRPs or CLRPs from the Copermittees could have been in the form of an investigative order, enforcement action, or a modification to the existing MS4 permits.

The San Diego Water Board removed the 18 month BLRP or CLRP submittal requirement only for the watersheds where there were no bacteria impairments on the 2008 303(d) List because there was not the same level of urgency to begin implementation of the TMDL requirements as for those watersheds where there continue to be bacteria impairments. The removal of the 18 month BLRP or CLRP submittal requirement did not mean that a BLRP or CLRP would not be required to be developed as part of the TMDL requirements in the MS4 permit.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs

The fact that the Beaches and Creeks Bacteria TMDLs are now part of the Basin Plan means that the TMDLs and the requirements of the TMDLs must be implemented through a regulatory mechanism to restore water quality standards in receiving waters and/or ensure discharges are not causing or contributing to exceedances of water quality standards in receiving waters. In this case, the Tentative Order is the regulatory mechanism that is implementing the requirements of the Beaches and Creeks Bacteria TMDLs to ensure that discharges from the Copermittees' MS4s will comply with the WLAs in the TMDL and not cause or contribute to exceedances of water quality standards in receiving waters.

For segments or areas where there is no bacteria impairment identified on the 303(d) List, implementation of the Beaches and Creeks Bacteria TMDL requirements in the Tentative Order will ensure that discharges from the Copermittees' MS4s will continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will be required to include the monitoring and assessments that are necessary to demonstrate that discharges from the Copermittees MS4s continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will not be required to include additional BMPs in the Water Quality Improvement Plans if the existing BMPs are allowing the Copermittees to achieve the bacteria TMDL requirements. If, however, bacteria impairments result in the re-listing of any of these beach segments on the 303(d) List, the incorporation of the TMDL requirements in the Water Quality Improvement Plan will fulfill the CLRP requirements, and the Copermittees will be required to update the Water Quality Improvement Plan to ensure that discharges from the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters by the final TMDL compliance date.

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Estimated costs to implement Beaches and Creeks Bacteria TMDLs are very high, and TMDLs may not be attainable.</i></p> <p>Several community planning groups, the County of San Diego and the San Diego Taxpayers Association expressed concerns with the estimated costs of implementing the Beaches and Creeks Bacteria TMDLs. There were also concerns expressed about the feasibility of attaining the TMDLs. The commenters generally objected to including the Beaches and Creeks Bacteria TMDLs in the Tentative Order until there was some certainty that the expenses associated with implementing the TMDLs will result in the achievement of the TMDLs.</p>	<p>Community Planning Groups Pala Pauma Valley Community Sponsor Group Jamul Dulzura Community Planning Group Ramona Community Planning Group Julian Community Planning Group</p> <p>Copermittees County of San Diego County of San Diego Office of County Counsel</p> <p>Societies/Associations/Coalitions San Diego Taxpayers Association</p>
<p>RESPONSE: The San Diego Water Board understands the concerns with the potential costs of implementing the requirements of the TMDLs, as well as the concerns with the feasibility of attaining the TMDLs.</p> <p>The costs associated with achieving the requirements of the Beaches and Creeks Bacteria TMDLs were considered during Basin Plan amendment process. The Beaches and Creeks Bacteria TMDL Basin Plan amendment was made available for public review and comment on several occasions. The San Diego Water Board adopted the Beaches and Creeks Bacteria TMDLs after considering the potential costs. The State Water Board, Office of Administrative Law, and the USEPA also approved the Beaches and Creeks Bacteria TMDLs.</p> <p>At this time it is difficult to predict the actual costs of complying with the Beaches and Creeks Bacteria TMDL requirements. Even the estimates that have been provided by the County of San Diego and the City of San Diego in their Comprehensive Load Reduction Plans acknowledge there is significant uncertainty in their cost estimates. While the cost estimates do provide some idea of the magnitudes of the potential costs for implementing BMPs and programs to achieve the TMDLs, the cost estimates fail to include or consider the potential cost savings or cost benefits that may be achieved or realized by implementing the Beaches and Creeks Bacteria TMDLs.</p> <p>The Beaches and Creeks Bacteria TMDL requirements provide the Copermittees a compliance schedule of up to 20 years. The Copermittees have not truly begun implementing the requirements of the TMDLs and have only questioned and raised concerns over the potential costs and feasibility of attaining the TMDLs before developing any information to demonstrate the TMDLs cannot, in fact, be attained or that the costs exceed the benefits of implementing the TMDLs.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	<p>The San Diego Water Board is implementing the requirements of the federal Clean Water Act. The incorporation of the requirements of the Beaches and Creeks Bacteria TMDLs in the Tentative Order is required to implement the WLAs that have been assigned to the MS4s, which is supported by the USEPA. The San Diego Water Board has not removed the Beaches and Creeks Bacteria TMDLs from Attachment E to the Order.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-3 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the WQBELs of the Beaches and Creeks Bacteria TMDL requirements to allow for load-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees, the City of Laguna Niguel, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. Several Copermittees submitted separate letters that supported the inclusion load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.</p>	<p>Copermittees City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p> <p>State/Federal Government USEPA</p>
<p>RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Beaches and Creeks Bacteria TMDLs.</p> <p>Please see the responses to comment AttE-1 and AttE-3.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-4 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs		
	<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for BMP-based compliance.</i></p> <p>The Orange County and San Diego County Copermittees requested that the Beaches and Creeks Bacteria TMDL requirements be revised to allow for BMP-based compliance. Several Copermittees submitted separate comments supporting the concept.</p> <p>Comments from Environmental Groups were not in support of allowing BMP-based compliance with the TMDL requirements through a “reasonable assurance analysis.”</p>	<p>Copermittees City of Imperial Beach City of Poway City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board agrees with the Copermittees’ request. The San Diego Water Board disagrees with the Environmental Groups that BMP-based compliance option should not be provided.</p> <p>Please see the response to comment AttE-1.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-5 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for adjustment of interim TMDL compliance dates.</i></p> <p>The Orange County and San Diego County Copermittees and the City of San Diego submitted comments noting that the Beaches and Creeks Bacteria TMDL included a provision that allows for the Copermittees to propose interim compliance dates if they develop a Comprehensive Load Reduction Plan, and requested the TMDL requirements be modified to allow for the interim TMDL compliance dates to be adjusted. The City of Imperial Beach supported the concept. The Environmental Groups requested that there be an assessment of progress toward achieving the interim goals within the term of the permit.</p>	<p>Copermittees City of Imperial Beach City of San Diego Orange County Copermittees San Diego County Copermittees</p> <p>Environmental Organizations Environmental Groups</p>
<p>RESPONSE: The San Diego Water Board agrees with the Copermittees to allow for the interim TMDL compliance dates to be adjusted. The San Diego Water Board also agrees that there should be an assessment or progress toward achieving interim goals within the term of the permit.</p> <p>The Water Quality Improvement Plan is essentially the same as a CLRP. Including language allowing the Copermittees to adjust the interim TMDL compliance dates in the Water Quality Improvement Plan would not be inconsistent with the requirements of the Beaches and Creeks Bacteria TMDLs in the Basin Plan. Thus, the San Diego Water Board has included language in Specific Provision 6.c.(1) of the revised Tentative Order that allows the Copermittees to propose alternative interim TMDL compliance dates in the Water Quality Improvement Plan.</p> <p>The requirements of Provision B.3.a.(2)(b) in the revised Tentative Order also require the Copermittees to establish an interim goal that the Copermittees will work toward achieving within the term of the permit.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-6 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Requests to revise the WQBELs of the Beaches and Creeks Bacteria TMDLs requirements.</i></p> <p>The City of Laguna Niguel submitted comments with information from a study being conducted by the Southern California Coastal Waters Research Project (SCCWRP) in cooperation with the Copermittees regarding bacteria loads that can be attributed to natural sources. The information provided by the City of Laguna Niguel was provided to support a request to include load-based WQBELs based on load reductions. The City of Laguna Niguel also requested that the load reductions be calculated using a baseline of 1996-2002 data instead of 2002-2011 data.</p> <p>The San Diego County Copermittees submitted comments noting that the total coliform water quality objectives only apply to ocean waters and should not be applied to creeks. The San Diego County Copermittees requested that the WQBELs expressed as receiving water limitations specify that the total coliform receiving water limitations only apply to beaches and not creeks.</p>	<p>Copermittees City of Laguna Niguel San Diego County Copermittees</p>
<p>RESPONSE: The San Diego Water Board agrees with the requests from the City of Laguna Niguel and the San Diego County Copermittees.</p> <p>The San Diego Water Board has incorporated WQBELs expressed as load-based effluent limitations based on percent load reductions. Please see the response to comments AttE-1 and AttE-3.</p> <p>The San Diego Water Board revised the tables with the WQBELs expressed as receiving water limitations to be consistent with the tables in the Beaches and Creeks Bacteria TMDLs.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-7 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs		
	<p>COMMENT: <i>Request to revise the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements to be consistent with TMDL Basin Plan amendment.</i></p> <p>The San Diego County Copermitees submitted comments requesting that the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements in the Order include the procedures to calculate wet weather exceedance frequencies as provided in the TMDL Basin Plan amendment.</p>	<p>Copermitees San Diego County Copermitees</p>
	<p>RESPONSE: The San Diego Water Board agrees with the request.</p> <p>Specific Provisions 6.d.(1)(c) and 6.d.(2)(c) have been modified to include the procedures for calculating the dry weather and wet weather exceedance frequencies for beaches and creeks.</p>	

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ATTACHMENT

14

**California Regional Water Quality Control Board
San Diego Region**

Response to Comments Report

Tentative Order No. R9-2015-0001

***An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266
National Pollutant Discharge Elimination System (NPDES) Permit
and Waste Discharge Requirements for Discharges From the Municipal
Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within
the San Diego Region***

January 21, 2015

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
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San Diego Region**

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Response to Comments on Tentative Order No. R9-2015-0001

January 21, 2015

Introduction

This report contains responses to written comments timely received on Tentative Order No. R9-2015-0001, *An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region*. The Tentative Order and its attachments were available for public review and comment for 60 days, with the comment period ending on November 19, 2014. Specifically, the San Diego Water Board requested comments on the following three documents:

- Tentative Order No. R9-2015-0001;
- Attachment No. 1 – Revised Order No. R9-2013-0001; and
- Attachment No. 2 – Revised Fact Sheet to Order No. R9-2013-0001.

The phrases “Tentative Order” and “Tentative Order as it amends Order No. R9-2013-0001” in the following response to comments table refers to both Tentative Order No. R9-2015-0001 and the two attachments. Comments and responses are organized by the section of either Attachment 1 or Attachment 2 that is being referenced. Wherever possible, comments are grouped based on content and summarized by the San Diego Water Board. The actual comment letters can be accessed on the San Diego Water Board website at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.r.shtml.

List of Commenters:

Comments were submitted by the following organizations, public agencies, or individuals:

1. City of Aliso Viejo
2. City of Del Mar
3. City of Lake Forest
4. City of San Diego
5. Coalition (San Diego Building Industry Association, Building Industry Association of Southern California, Associated General Contractors, Associated Builders and Contractors, San Diego Regional Chamber of Commerce, Business Leadership Alliance, San Diego Association of Realtors, San Diego Apartment Association, National Association of Industrial & Office Properties, Building Office & Management Association, San Diego Chapter of the American Society of Landscape Architects)
6. Coastal Environmental Rights Foundation
7. Construction Industry Coalition on Water Quality (The Associated General Contractors of California, Building Industry Association of Southern California,

Engineering Contractors Association, Southern California Contractors Association, and the United Contractors located in San Ramon in Northern California)

8. County of Orange
9. County of San Diego
10. County of Riverside
11. Industrial Environmental Association
12. San Diego Coastkeeper
13. San Diego Unified Port District
14. Tory R. Walker Engineering, Inc.

Acronyms and Abbreviations

The following acronyms and abbreviations are used in the response to comments table.

ASBS	Area(s) of Special Biological Significance
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
LID	Low Impact Development
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NAL	Non-Storm Water Action Level
NPDES	National Pollutant Discharge Elimination System
ROWD	Report of Waste Discharge (application for NPDES reissuance)
SAL	Storm Water Action Level
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

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ON TENTATIVE ORDER NO. R9-2015-0001**

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RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

PR- 1 PREVIOUSLY SUBMITTED COMMENT LETTERS	
	<p>COMMENT: <i>All prior comments, evidence, and objections made during adoption of Order No. R9-2013-0001 are applicable to Tentative Order No. R9-2015-0001 are requested to be incorporated during consideration of Tentative Order No. R9-2015-0001.</i></p> <p>Because of the uncertainty of the legal impact the anticipated adoption of Tentative Order No. R9-2015-0001 might have upon pending appeals with the State Water Resources Control Board (State Board) of the Order being amended (Order No. R9-2013-0001), the commenters wish to renew all objections to various aspects of the Tentative Order as described in any petition already before the State Board and further wish to incorporate all evidence pertaining to those objections.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • County of San Diego Concurring Cities: Petitioners in proceeding A-2254 • San Diego Unified Port District • Riverside County Copermittees • City of San Diego
	<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenters.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0001 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001 and the oral responses to comments during the workshop and hearings during that process address the renewed comments. The San Diego Water Board incorporates its written responses to comments and oral responses to comments raised during the workshops and hearing on Order No. R9-2013-0001 into these responses. To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Board in SWRCB/OCC File A-2254(a)-(p), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Board's petition proceeding. No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

PR-2 PREVIOUSLY SUBMITTED COMMENT LETTERS		
	<p>COMMENT: <i>The Construction Industry Coalition on Water Quality resubmits its comment letters on hydromodification management cited in letters dated September 14, 2012 and January 11, 2013, which were submitted as part of the May 2013 adoption process of Order No. R9-2013-0001.</i></p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The San Diego Water Board understands the concerns expressed by the commenter.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0001 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001 and the oral responses to comments during the workshop and hearings during that process address the renewed comments. The San Diego Water Board incorporates its written responses to comments and oral responses to comments raised during the workshops and hearing on Order No. R9-2013-0001 into these responses. To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Board in SWRCB/OCC File A-2254(a)-(p), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Board's petition proceeding. No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-1 GENERAL COMMENTS		
	<p><u>COMMENT:</u> <i>Remove City of Lake Forest from Table 1b and the associated footnote.</i></p> <p>The City of Lake Forest requests changes to the Tentative Order to clarify regulation of the City of Lake Forest by a single water board as described in the agreement between the Santa Ana Water Board and the San Diego Water Board.</p>	City of Lake Forest
	<p><u>RESPONSE:</u> The San Diego Water Board generally agrees with the City's comment.</p> <p>The City of Lake Forest was removed from the list of Copermitees in Table 1b and a footnote to the Table was added to identify the requirements of the Order that apply to the City of Lake Forest.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-2 GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order toxicity requirements do not take into account information presented in the Orange County Copermittees ROWD.</i></p> <p>The County of Orange and Concurring Cities, and Orange County Flood Control District comment that toxicity occurs sporadically in streams and creeks in south Orange County and toxicity is encountered in open (undeveloped) areas at levels equivalent to those in urban areas. They also comment that there is a greater prevalence of toxicity in wet weather and pesticides are implicated as the principal source of this toxicity. This pattern suggests that dry weather toxicity is not caused by urban sources of pollutants. Moreover pesticide use, presents a moving target for MS4 management efforts due to the continuous introduction of new products. Regulation of pesticide use is exclusively within the jurisdiction of state and federal agencies and not the role of MS4s.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment. The San Diego Water Board reviewed and considered the information pertaining to toxicity within the Copermittees' ROWD.</p> <p>Generally speaking, numerous sources of potential pollutants in storm water runoff exist, including contributions from urban activities such as industry, transportation, and residential development or from agricultural activities. Runoff from pervious and impervious areas (i.e., streets, parking lots, lawns, golf courses and agricultural land) carries accumulated contaminants (i.e., atmospheric dust, trace metals, street dirt, hydrocarbons, fertilizers and pesticides) into receiving waters. This problem is exacerbated in Southern California, where urbanization dominates most watersheds. In southern California, the runoff from urbanized watersheds contributes substantial loadings of a variety of constituents to receiving water environments. For example, the Southern California Coastal Water Research Project (SCCWRP) has estimated the cumulative loads of lead and zinc from all of the urbanized watersheds in the Southern California Bight to the coastal oceans represent over half of the combined mass emissions from all sources, which include traditional point sources such as publicly owned treatment works, industrial facilities, and power generating stations.</p> <p>Because of the additive and antagonistic interactions of the many chemical constituents found in storm water runoff, there is a strong potential for receiving water quality impacts related to toxicity. Moreover, the varied structural BMPs in use to reduce pollutant levels in urban runoff are not capable of reducing the most toxic fraction of runoff, the dissolved phase. Metals typically associated with fine particles in storm water runoff also have the potential to accumulate in the sediments of downstream receiving waters where they may contribute to the risk of toxicity. Therefore, even when BMPs have been shown to reduce the larger particulates found in runoff, it cannot be assumed that treatment processes are also reducing toxicity. Consequently, direct</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-2	GENERAL COMMENTS	
	<p>measurement of toxicity in storm water runoff and receiving water sediments is needed.</p> <p>The requirements for toxicity sampling were updated during the adoption of Order No. R9-2013-0001 in response to comments provided by USEPA to make the toxicity requirements more consistent with recently adopted MS4 permits (i.e. Caltrans and Los Angeles County MS4 Permits). The recently adopted Caltrans and Los Angeles County MS4 Permits include updated toxicity data collection procedures and data analysis methods that are consistent with the Draft State Water Resources Control Board Policy for Toxicity Assessment and Control, June 2012 (Draft State Board Toxicity Policy). See also response to comment D-1. Sediment monitoring requirements were also updated in Water Quality Control Plan for Enclosed Bays and Estuaries, Part 1 Sediment Quality (State Plan).</p> <p>Based on these considerations, no revisions to the Tentative Order are needed.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-3	GENERAL COMMENTS	
	<p>COMMENT: <i>Numbering in Tentative Order should explicitly identify the major sections to help the reader.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that the Tentative Order should explicitly identify the major permit sections to increase readability.</p> <p>Footers throughout the Tentative Order indicate the subsections, e.g. A.1, A.2, to orient the reader. Additionally, the electronic PDF version of the Tentative Order has bookmarks for the major provisions to assist in navigating the requirements. Therefore, the San Diego Water Board did not make the requested revisions because existing footers and navigation capabilities address the comment.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-4	GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order provides an overly broad interpretation of the storm water regulations by requiring MS4s to “enhance” and “restore” beneficial uses as the CWA only requires that Copermittees protect beneficial uses and prevent nuisance.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order provides an overly broad interpretation of the storm water regulations.</p> <p>The San Diego Water Board reviewed and considered this comment during the adoption process of Order No. R9-2013-0001 (Regional MS4 Permit), making changes that replaced language which referred to “restoring water quality standards in receiving water” to language that required protection of water quality standards in receiving water from MS4 discharges. The Fact Sheet, pages 114-115 to Tentative Order No. R9-2015-0001 clearly states that Provisions E.5.e.(1)-(2) do not require the implementation of channel, streams, and/or habitat rehabilitation projects, but do require the Copermittees to develop a program with strategies to facilitate the implementation of these types of projects in areas of existing development. The strategies are expected to include allowing and encouraging Priority Development Projects to implement retrofitting types of projects as a means of compliance with the structural BMP performance criteria requirements of Provisions E.3.c.(1) and E.3.c.(2). Therefore, no revisions were made to Tentative Order No. R9-2015-0001 or its Attachments.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-5	GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order includes language that provides an overly broad use of the term “prohibit.”</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order provides an overly board use of the term prohibit.</p> <p>The Clean Water Act requires MS4 permits to include a requirement that non-storm water discharges are to be “effectively prohibited” to the MS4. The Code of Federal Regulations requires each Copermittee to have the legal authority to “prohibit” non-storm water discharges to the MS4. The Phase I Final Rule clarifies what “effectively prohibit” means (55 FR 47995): “Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to “effectively prohibit” non-storm water discharges from the municipal separate storm sewer...Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the municipal separate storm sewer.)”</p> <p>During the 2013 adoption process for Order No. R9-2013-0001, where appropriate, the language in Order No. R9-2013-0001 was revised to be consistent with the language of the Clean Water Act to include the term “effectively prohibit” instead of “prohibit” or “reduce and eliminate.” In other cases, the language was maintained to be consistent with the requirements of the Code of Federal Regulations requiring the Copermittees to establish the legal authority to “prohibit” non-storm water discharges to their MS4s and enforce that legal authority. The establishment and enforcement of the legal authority to “prohibit” non-storm water discharges to their MS4s is how the Copermittees will “effectively prohibit” non-storm water discharges to their MS4s.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

Gnl-6	GENERAL COMMENTS	
	<p>COMMENT: <i>The Tentative Order's WQBELs were improperly formulated.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: There are TMDLs in the Basin Plan that established wasteload allocations for MS4 discharges causing or contributing to exceedances of water quality standards in specified impaired water bodies. The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions and requirements of the TMDLs wasteload allocations (WLAs) in accordance with applicable federal regulations at 40 CFR 122.44(d)(1) (vii)(B) and 40 CFR 122.44(k)(2)-(4). TMDLs included in Attachment 1 to the Tentative Order have been approved by USEPA during the TMDL development process and again reviewed by USEPA as part of the Regional MS4 2013 Permit adoption process.</p> <p>NPDES permits must limit and control all pollutants that are or may be discharged at a level that "will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard including narrative criteria." (See 40 CFR 122.44(d)(1)(i)). The analysis that is performed to determine what pollutants require WQBELs is commonly referred to as the "reasonable potential analysis." NPDES permits must include WQBELs for all pollutants with "reasonable potential." (see 40 CFR 122.44(d)(1)(i))</p> <p>Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards. Because there are TMDLs in the Basin Plan that have identified the established WLAs for MS4s as discharges causing or contributing to exceedances of water quality standards, demonstration of reasonable potential is presumed for the purposes of establishing a WQBEL based on an applicable WLA. (see 40 CFR 122.44(d)(1)(ii))</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Gnl-7 GENERAL COMMENTS	
	<p>COMMENT: <i>WQBELs should only be defined as effluent limitations.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the assumptions and requirements of TMDL wasteload allocations in accordance with applicable federal regulations at 40 CFR 122.44(d)(1)(vii)(B).</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Lgl-1	LEGAL COMMENTS	
	<p>COMMENT: <i>Land Development requirements expose Copermittees to significant litigation risk and will be largely unenforceable. Therefore, predevelopment runoff reference conditions and stream, channel and habitat restoration requirements should be eliminated in their entirety.</i></p> <p>Commenters generally expressed concerns with the Copermittees' legal authority to imposed requirements on development projects where a nexus between impact on the receiving water and the project cannot be established. The Copermittees assert that they would be subject to liability under takings clauses of the US and California Constitutions and the Mitigation Fee Act for requiring hydromodification management BMP requirements on new development or redevelopment projects that discharge to hardened channels where a hydromodification impact would be questionable and difficult to establish.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board recognizes the concerns of the Copermittees' legal authority to impose hydromodification management requirements on development that causes no hydromodification impacts and responded to nearly identical comments during the adoption process for Order No. R9-2013-0001. As stated in response to comment Gnl-1, the San Diego Water Board incorporates those responses into this response to comments document. As stated in the 2013 responses to comments document:</p> <p>Federal law mandates that permits issued to MS4s require management practices that will result in reducing pollutants to the maximum extent practicable. The state is required, by law, to select the BMPs. (See NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292; Environmental Defense Center v. USEPA (9th Cir. 2002) 344 F.3d 832, 855; Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389.) The Tentative Order's requirements for Low Impact Development and hydromodification management controls are authorized by federal law. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a management program which is to include "A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed."</p> <p>The Tentative Order does not impose land use regulations, nor does it restrict or control local land-use decision-making authority. Rather, the Tentative Order requires the permittees to fulfill Clean Water Act requirements and protect water quality in their land use decisions. The requirements in the Tentative Order</p>	

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Lgl-1	LEGAL COMMENTS
	<p>allow for flexibility in compliance options to the extent allowable under the Clean Water Act. The substantive regulatory requirements of the Clean Water Act are a valid exercise of the federal government's enumerated powers and authority over navigable waters. (NRDC v. USEPA (9th Cir. 1998) 863 F.2d 1420, 1436.)</p> <p>Environmental regulation is not land use regulation, and therefore does not infringe upon local authority over land use decisions. (California Coastal Commission v. Granite Rock (1987) 480 U.S. 572. In addition, local land use planning must be consistent with general statewide laws. (County of Los Angeles v. California State Water Resources Control Board (2006) 143 Cal.App.4th 985, 1003.) Article 11, section 7, of the California Constitution states that a county or city may not enact laws that conflict with general laws. The Porter-Cologne Water Quality Control Act contains the California Legislature's finding that water quality is a matter of state-wide concern, requiring a statewide program administered at a regional level. (See, e.g., Wat. Code, § 13000; see also generally Southern California Edison v. State Water Resources Control Board (1981) 116 Cal.App.3d 751, 758.) Section 101 of the CWA has a companion policy statement, where Congress found that water quality is a matter of federal concern.</p> <p>The Tentative Order also does not dictate specific methods of compliance or dictate the manner in which the Copermittees use their land. Where the Tentative Order includes detailed requirements, it is to comply with the Clean Water Act and its regulations. USEPA's regulations mandate that certain requirements be included in MS4 permits in order to achieve the requirements of the Clean Water Act. Thus, federal law mandates that permits issued for MS4s require certain actions that will result in the elimination or reduction of pollutants to receiving waters and the state is required, by federal law, to select the controls necessary to meet this standard. (See NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308; City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region (2006) 135 Cal.App.4th 1377, 1389-90.)</p> <p>The requirement that the Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. It does not require mitigation beyond redevelopment project impacts because the requirement lessens (although does not eliminate) the perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion) absent improved controls of post-project runoff flow rates and durations. The San Diego Water Board maintains that the Copermittees have authority to implement this requirement, and that if implemented it would not rise to the level of a taking of private property. The pre-development condition provision is also consistent with the requirements in both the current Orange County and Riverside County MS4 permits.</p>

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Lgl-1	LEGAL COMMENTS
	<p>To remove the question of the nexus between a project's impacts on an already hardened channel, the Tentative Order includes a hydromodification management exemption for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.</p>

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Lgl-2	LEGAL COMMENTS	
	<p>COMMENT: <i>Tentative Order numeric WQBELs violate the requirements of law because they are infeasible.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that including numeric WQBELs for the TMDLs in the Tentative Order violate the requirements of law.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations under 40 CFR 122.44(k) do not require WQBELs to be BMP-based if numeric effluent limitations are infeasible, but only that WQBELs that implement WLAs <u>may</u> be expressed in the form of BMPs. BMP-based WQBELs may be allowed if BMPs alone adequately implement WLAs, and additional controls are not necessary. This is consistent with a 2002 USEPA memorandum for “<i>Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.</i>” WQBELs are required for point source discharges that have the reasonable potential to cause or contribute to an excursion of water quality standards and technology based effluent limitations or standards are not sufficient to achieve water quality standards. Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards.</p> <p>The memorandum “<i>Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs)’ issued by USEPA on November 26, 2014 states, “Where the NPDES authority determine that MS4 discharges have a reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations necessary to meet water quality standards.”</i> The “where feasible” in the memorandum applies to the NPDES permitting authority’s discretion to include numeric effluent limitations necessary to meet water quality standards, not to the feasibility of achieving the numeric effluent limitations. The State Water Board, in Order WQ 2006-0012 (Boeing), has made clear that “infeasibility” in the context of numeric effluent limitations refers to “the ability or propriety of establishing” numeric limits, as</p>	

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Lgl-2	LEGAL COMMENTS
	<p>opposed to the feasibility of compliance.</p> <p>The Caltrans MS4 permit is issued by the State Water Board. Even though the Caltrans MS4 permit may allow for BMP-based WQBELs, this does not require the San Diego Water Board to include BMP-based WQBELs in the Tentative Order regardless of any potential or apparent conflict. The San Diego Water Board will issue additional requirements to Caltrans with numeric WQBELs when and where warranted.</p> <p>The San Diego Water Board considered the feasibility of incorporating numeric WQBELs to implement the requirements of each of the TMDLs and has determined that they are feasible, and necessary, to include to meet water quality standards, consistent with the 2014 USEPA memorandum. Numeric WQBELs are also "additional controls" necessary to implement the WLAs, consistent with the 2002 USEPA memorandum.</p> <p>Each of the TMDLs in the Tentative Order, however, includes BMP-based WQBELs which must be implemented to achieve the numeric WQBELs. The Tentative Order requires the Copermittees to implement the BMP-based WQBELs to achieve the numeric WQBELs. This is consistent with the 40 CFR 122.44(d)(1)(vii)(B) and 40 CFR 122.44(k), and the recommendations of the 2014 USEPA memorandum. The Tentative Order has also been revised to include interim and final TMDL compliance determination options that allow the Copermittees to demonstrate that the BMP-based WQBELs will achieve the numeric WQBELs. The numeric WQBELs are necessary for the Copermittees to quantitatively demonstrate that the BMPs implemented are achieving the WLAs of the TMDLs.</p> <p>Thus, the Tentative Order appropriately includes numeric WQBELs and does not violate any requirements of law.</p>

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Lgl-3 LEGAL COMMENTS	
<p>COMMENT: <i>San Diego Water Board does not have the legal authority to issue a regional MS4 permit.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District request that they be issued an individual permit. The Commenters claim the San Diego Water Board does not have the legal authority to include Orange County in a Regional Permit because there is no system-wide, jurisdiction-wide, or common watershed basis to do so.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
<p>RESPONSE: The San Diego Water Board incorporates its responses to comments for the adoption of Order No. R9-2013-0001 and other documents in the record including the September 7, 2012, legal memorandum prepared by San Diego Water Board counsel. The San Diego Water Board disagrees with the commenters that the federal regulations do not authorize the issuance of a region-wide MS4 permit coextensive with the jurisdictional boundaries of the San Diego Region.</p> <p>The San Diego Water Board reviewed and considered this comment during the adoption process of Order No. R9-2013-0001 (Regional MS4 Permit) and reaffirms its position that despite the geographic separation, the San Diego Water Board has legal authority to issue a regional MS4 permit through its authority in the Clean Water Act. (September 7, 2012 Letter from San Diego Water Board Counsel on Legal Authority Supporting Issuance of a Regional MS4 Permit) Section 402, subpart (p)(3)(B) of the Clean Water Act states that "Permits for discharges from municipal storm sewers – (i) may be issued on a system- or jurisdiction-wide basis" The federal storm water regulations in 40 CFR at Part 122.26, subdivision (a)(1)(v) also state that the Director (the San Diego Water Board) may designate dischargers from municipal separate storm sewers on a system-wide or jurisdiction-wide basis, taking into consideration the following factors: (A) location of the discharge with respect to waters of the United States; (B) the size of the discharge; (C) the quantity and nature of the pollutants discharged to waters of the United States and (D) other relevant factors. Consideration of these factors provides wide discretion to the San Diego Water Board in issuing MS4 permits.</p> <p>More specifically, the regulations permit issuance of system-wide permits covering all MS4s in "adjacent . . . large or medium separate storm sewer systems." (See 40 CFR sec. 122.26(a)(3)(iv). The regulations also support issuance of MS4 permits on watershed or "other basis" contemplating that such permits may "specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas" (40 CFR Part 122.26(a)(3)(v).)</p> <p>The USEPA responses to comments for the above regulations also make clear that the permitting authority, in</p>	

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Lgl-3	LEGAL COMMENTS
	<p>this case, the San Diego Water Board, has flexibility to establish system- or region-wide permits. In the Final Rule published in the Federal Register and containing USEPA's responses to comments, USEPA notes that paragraph (iv) of section 122.26(a)(3) would allow an entire system in a geographical region under the purview of a state agency to be designated under a permit. (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47990, 48030-48042 (Nov. 16, 1990).)</p> <p>It is important to note that a regional MS4 permit does not expand the requirements for each municipality beyond its borders as the federal regulations make clear that MS4 permittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators. (40 CFR Part 122.26(a)(3)(vi).) See also September 7, 2012, memorandum from Jessica Jahr and Catherine Hagan, State Water Board's Office of Chief Counsel, to Ryan Baron and David Huff, counsels for Orange and Riverside Counties, respectively.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Lgl-4 LEGAL COMMENTS	
	<p>COMMENT: <i>The Requirements in the Tentative Order are more stringent than federal law, requiring an economic analysis.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District assert that several requirements of Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about deficiencies in the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that "several requirements of Tentative Order go beyond the requirements of Federal law."</p> <p>The San Diego Water Board is charged with construction of and administration of the Clean Water Act in the San Diego Region. In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (Ibid.)</p> <p>Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See City of Rancho Cucamonga, supra, 135 Cal.App.4th at 1389; Building Industry Association of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (Id. at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).)</p> <p>Accordingly, a determination of whether the conditions contained in Tentative Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions with federal law. The appropriate focus is whether the permit conditions as a whole exceed the MEP standard. The commenters assert that provisions of the Tentative Order are more stringent than the requirements of the Clean Water Act and therefore require an analysis of the factors, including economic considerations, in Water Code section</p>

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Lgl-4	LEGAL COMMENTS
	<p>13241 before the San Diego Water Board can approve such provisions. As indicated above, the San Diego Water Board disagrees that provisions of the Tentative Order are more stringent than requirements of the Clean Water Act. Because the Tentative Order is not more stringent than federal law, its adoption does not require the San Diego Water Board to consider Water Code section 13241 factors. The California Supreme Court in <i>City of Burbank v. State Water Resources Control Board, et al.</i>, ((2005) 35 Cal.4th 613) (<i>Burbank</i>), held: [Water Code] section 13377 specifies that wastewater discharge permits must meet the federal standards set by federal law. In effect, section 13377 forbids a regional board's consideration of any economic hardship on the part of the permit holder if doing so would result in the dilution of the requirements set by Congress in the Clean Water Act. That act prohibits the discharge of pollutants into the navigable waters of the United States unless there is compliance with federal law (33 U.S.C. § 1322(a)), and publicly operated wastewater treatment plants such as those before us here must comply with the act's clean water standards, regardless of cost [citations]. Because [Water Code] section 13263 cannot authorize what federal law forbids, it cannot authorize a regional board, when issuing a wastewater discharge permit, to use compliance costs to justify pollutant restrictions that do not comply with federal clean water standards." (<i>Burbank</i>, 35 Cal.4th at 625.)</p> <p>While the <i>Burbank</i> decision does require an analysis of Water Code section 13241 factors when the state adopts permit conditions that are more stringent than federal law (<i>id.</i> at 618) Tentative Order No. R9-2015-0001 reflects that all of the challenged provisions are necessary to implement federal law. Thus, the San Diego Water Board is not required to consider economic information to justify a "dilution of the requirements" established in federal law. Even when applicable, consideration of economic information pursuant to section 13241 does not require a cost-benefit analysis, as some commenters suggest. And section 13241 neither specifies how regional water boards must consider its enumerated factors nor does it require that regional water boards may specific findings documenting consideration of the factors. (See <i>California Ass'n of Sanitation Agencies, et al. v. State Water Resources Control Board, et al.</i>, (208 Cal.App.4th 1438, 1464 (2012).) Nonetheless, the Fact Sheet and Response to Comments reflect economic information that has either been developed or gathered by the San Diego Water Board or has been submitted by Copermittees. To the extent that economic information in connection with compliance and other costs associated with challenged permit provisions, the San Diego Water Board has fully considered this information. Under these circumstances, <i>Burbank</i> does not require more.</p> <p>See also comment response Fnd-8.</p>

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Lgl-5 LEGAL COMMENTS	
	<p>COMMENT: <i>The San Diego Water Board cannot determine whether a particular mandate is unfunded.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: In proposing Tentative Order No. R9-2015-0001, the San Diego Water Board proposes amendments to Order No. R9-2013-0001 which includes Finding 31 and corresponding discussion in the Fact Sheet setting forth the San Diego Water Board's conclusion and supporting reasoning that Order No. R9-2013-0001 does not constitute an unfunded state mandate requiring subvention. The San Diego Water Board incorporates its responses to comments on the adoption of Order No. R9-2013-0001 into this response. The San Diego Water Board does not dispute that the Commission on State Mandate ultimately has jurisdiction to determine whether the State has imposed a mandate requiring state subvention. However, it remains entirely appropriate for the San Diego Water Board to set forth its legal basis to support its conclusion Order No. R9-2013-0001, as amended by Tentative Order No. R9-2015-0001, contains provisions the Board finds to be necessary and appropriate to meet the federal Clean Water Act standards.</p> <p>While the Commission may be expert in state mandates, it has no expertise in the field of water law. As indicated in response to comment Lgl-5, above, the San Diego Water Board does not agree that Order No. R9-2013-0001 as amended by Tentative Order No. R9-2015-0001 exceed federal requirements of the Clean Water Act. The San Diego Water Board is charged by law with administering and constructing the Clean Water Act's requirements and is entitled to considerable deference in its interpretation of the Act. (See Building Industry Association of San Diego, supra, 124 Cal.App.5th at pp. 873, 879 fn.9; County of Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985, 997.) In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (Ibid.) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (NRDC v. USEPA (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See City of Rancho Cucamonga, supra, 135 Cal.App.4th at 1389;</p>

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Lgl-5	LEGAL COMMENTS
	<p>Building Industry Association of San Diego County v. State Water Resources Control Bd. (2004) 124 Cal.App.4th 866, 882-883.)</p> <p>Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (Id. at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) The San Diego Water Board's findings are the expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Cal. Wat. Code §§ 13001, 13370.) The San Diego Water Board is not precluded from including provisions in Tentative Order No. R9-2015-0001 which commenters may contend are state mandates and it is well within the San Diego Water Board's authority to conclude, based on its expertise in administering the Clean Water Act, Tentative Order No. R9-2015-0001 does not exceed federal law and is therefore not a state mandate subject to subvention.</p>

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January 21, 2015

Fnd-1	FINDINGS	
	<p>COMMENT: <i>Modify findings and/or Fact Sheet to include additional key findings from the Report of Waste Discharge (including the State of the Environment) and use this information as the basis for the Draft Order's requirements.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District are concerned that the San Diego Water Board did not review and consider the "State of the Environment" discussion in their ROWD based on the Findings and Fact Sheet amendments presented in the Tentative Order and its Attachments.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment.</p> <p>The San Diego Water Board reviewed and considered all information in the Copermittees ROWD, as is documented in the Findings of Tentative Order No. R9-2015-0001 (i.e. Findings 1 through 4). Based on the ROWD review newly proposed requirements specific to southern Orange County Copermittees (i.e. interim hydromodification exemptions for large rivers and engineered channels) are presented in Attachment No. 1 to the Tentative Order (i.e. Order No. R9-2013-0001 as Amended by Order No. R9-2015-0001). San Diego Water Board reviewed the ROWD, including the "State of the Environment" discussion and the San Diego Water Board concluded that many of the ROWD recommendations could be accommodated by the requirements in Order No. R9-2013-0001 with only a limited number of changes required. The new flexible regulatory approach (described in the Fact Sheet for Order No. 2013-0001) and proposed requirements, puts more control in the hands of the Copermittees to develop a watershed-based planning approach. As described in Finding 2 of the Tentative Order, development of a watershed-based planning approach is portrayed in the ROWD as the most important next step to take in the development of the storm water programs in Orange County. The Tentative Order also provides the Copermittees with the flexibility to continue taking advantage of opportunities to reduce dry weather flows (a repeated recommendation throughout the ROWD).</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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Fnd-2 FINDINGS	
	<p>COMMENT: <i>Modify Finding 7 - In-Stream Treatment Control Systems to allow for the implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or maintenance or reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District suggest modify the language in Finding 7 to allow for full flexibility to identify creative solutions that meet the Tentative Order's alternative compliance goals through implementation of stream restoration or rehabilitation.</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the language in Finding 7 of Order No. R9-2013-0001 stifles Copermittee ability to meet the Tentative Order's alternative compliance goals through creative solutions such as implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or prevents maintenance or reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.</p> <p>Finding 7 states that pursuant to federal regulations (40CFR 131.10(a)) states cannot adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Finding 7 concludes that treatment control best management practices (BMPs) must not be constructed in waters of the U.S. The language of Finding 7 does not impinge upon a Copermittees ability to take full advantage of the flexibility provided in the Tentative Order's alternative compliance option.</p> <p>Permit Provision II.E.3.c.(3) of Order No. R9-2013-0001 enables each Copermittee, at its own discretion, to allow Priority Development Projects (POPs) to participate in an alternative compliance program in lieu of implementing the onsite structural BMP performance requirements of Provisions II.E.3.c.(1) and II.E.3.c.(2). Alternative compliance is only allowed if the Copermittee determines that implementation of an alternative compliance project will result in a greater overall water quality benefit for the Watershed Management Area than fully complying with the onsite performance requirements.</p> <p>This alternative compliance option establishes a mechanism for Copermittees to provide alternative candidate projects for those land development projects that are unable to fully implement controls onsite. Copermittees can develop and make available a variety of candidate alternative compliance projects, including stream restoration and rehabilitation projects within a water body, as long as such projects do not entail placement of a treatment facility or treatment control BMPs within the water body. A vast variety of candidate projects could</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District

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Fnd-2	FINDINGS
	<p>be proposed under Permit Provision II.E.3.c.(3) and it is expected that candidate projects will not include projects that entail construction, operation, and maintenance of a pollution treatment control facilities or BMPs in a water body. The placement of structures of this type in a water body is contrary to the intent of 40CFR 131.10(a) and; therefore the Tentative Order does not propose any modifications to Finding 7. Many candidate project options exist that could a) achieve the greater overall water quality benefit envisioned by the alternative noncompliance permit provision, and b) support the physical, chemical, and biological integrity, as well as the beneficial uses of a particular water body, and c) not entail constructing treatment facilities or BMPs within a water body.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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Fnd-3 FINDINGS	
	<p>COMMENT: <i>Modify Finding 8, 16, and 17 to remove presumption that discharges from MS4s always contain waste.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District object to Finding 8 of Order No. R9-2013-0001 stating that discharges from the MS4s contain waste, and that Finding 8 does not acknowledge that there may not be pollutants in the discharges from the MS4s. The commenters requested revisions to Findings 8, 16 and 17 to reflect this position.</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the commenters that Findings 8, 16, or 17 need revision.</p> <p>The Tentative Order implements the requirements of the California Water Code as well as the requirements of the Clean Water Act. Under California Water Code section 13376, any person discharging waste, or proposing to discharge wastes to waters of the State is not authorized to discharge waste unless issued waste discharge requirements. The requirements of the Clean Water Act, specific to discharges of pollutants to waters of the U.S. are also included in the California Water Code, Chapter 5.5 of Division 7. Thus, under the California Water Code, any person discharging pollutants, or proposing to discharge pollutants to waters of the U.S. is not authorized to discharge pollutants unless issued waste discharge requirements that include NPDES requirements. Waste discharge requirements that include NPDES requirements is also an NPDES permit under the Clean Water Act. The Clean Water Act and the California Water Code requires municipalities to obtain and comply with NPDES permits for authorized discharges of pollutants to waters of the U.S. from their MS4s. Municipalities proposing to discharge pollutants from an MS4 must obtain an NPDES permit before they can lawfully discharge.</p> <p>Comments received assert that the definition of “waste” in California Water Code section 13050 does not include storm water or any discharge that is not created by human activity. Comments received also assert that waste discharge requirements and NPDES permits cannot regulate the discharge of “pure storm water” and that not all discharges from the MS4 contain pollutants.</p> <p>Discharges from the MS4 are not “pure storm water.” Storm water that flows over the surface of any developed area, which includes the MS4 itself, do not enter or discharge from the MS4 without coming into contact with pollutants or constituents that alter the storm water such that it is no longer “pure storm water.” Thus, storm water discharges from the MS4 contains pollutants and contain waste. It is well-known and documented that urban runoff and storm water contains pollutants. (See, e.g., State Water Board Order WQ</p>

- **County of Orange**
Concurring Cities:
Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo
- **Orange County Flood Control District**

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Fnd-3	FINDINGS
	<p>2001-015 ("As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit (citation). It is also undisputed that urban runoff contains 'waste' within the meaning of Water Code section 13050(d), and that the federal regulations define 'discharge of a pollutant' to include 'additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man.' (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of 'waste' and 'pollutant.' And not the runoff itself. [fn]. (p. 5.))</p> <p>Tentative Order No. R9-2015-0001 (like the current adopted version of Order No. R9-2013-0001) does not regulate "pure storm water." The Tentative Order regulates the discharge of storm water that is being discharged as a waste and contains pollutants. Finding 8 of Order No. R9-2013-0001 accurately states that discharges from the MS4s contain waste, as defined in the California Water Code. Finding 8 also accurately states that discharges from MS4s contain pollutants that adversely affect the quality of waters of the state. Findings 16 and 17 also accurately conclude that BMPs and implementation of BMPs are necessary to remove waste and pollutants in storm water discharges from MS4s.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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Fnd-4 FINDINGS	
	<p>COMMENT: <i>Delete Finding 11. Natural waters cannot legally be classified as part of the MS4, and a part of both MS4 and receiving water.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that Finding 11 is inaccurate and the San Diego Water Board cannot classify natural waters as part of the MS4.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment.</p> <p>An MS4 is defined in the federal regulations as a conveyance or system of conveyances owned or operated by a Copermittee, and designed or used for collecting or conveying runoff. Therefore, the San Diego Water Board considers natural drainages that are used by the Copermittees as conveyances of runoff, as both part of the MS4 and as receiving waters.</p> <p>The State Water Board supports this approach. In reviewing a Petition on Order No. R9-2001-0001, the State Water Board stated "<i>We also agree with the Regional Water Board's concern, as stated in its response, that there may be instances where MS4s use 'waters of the United States as part of their sewer system [...]</i>" State Water Resources Control Board Order WQ 2001-15.</p> <p>Furthermore, the U.S. Supreme Court's 2006 <i>Rapanos</i> decision supports the conclusion that natural streams in developed areas can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under Clean Water Act section 404 and also be considered point sources of pollution discharges regulated under Clean Water Act section 402. (See <i>Rapanos, et al. v. United States and Carabell et al. v. United States Army Corps of Engineers, et al. (2006) 547 U.S. 715, 743-744.</i>)</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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Fnd-5 FINDINGS	
	<p>COMMENT: <i>Modify Finding 12 to more accurately describe that Copermittees do not accept free and open access to MS4s, and are not responsible for all discharges not prohibited.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District object to Finding 12 stating that the Copermittees provide free and open access to MS4s. The Copermittees assert that they are not responsible for discharges from their MS4s that are from third parties that are subject to the jurisdiction of the San Diego Water Board</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that Finding 12 is inaccurate.</p> <p>The Copermittees have the option to request the authority to discharge from their MS4s under an NPDES permit or comply with the complete prohibition against the discharge of pollutants pursuant to Clean Water Act section 301(a) (33 U.S.C. § 1311(a)). These choices are provided by the federal Clean Water Act, not state laws.</p> <p>The Copermittees have opted to discharge from their MS4s under an NPDES permit. In doing so, they are responsible for discharges from the MS4s. Thus, Finding 12 correctly establishes that the Copermittees provide free and open access for third party discharges to their MS4s and that in doing so the Copermittees are responsible for discharges into the MS4 that they do not prohibit or otherwise control. Finding 12 also correctly concludes that the Copermittees cannot passively receive and discharge pollutants from third parties.</p> <p>The Copermittees have the responsibility of identifying the sources of discharges and pollutants from their MS4s. If the Copermittees are not actively identifying sources and cannot identify sources of discharges and pollutants to and from their MS4s, then the Copermittees are the source of the MS4s discharges and pollutants to receiving waters, even if they believe third parties are responsible for the discharges and pollutants.</p> <p>If, however, the Copermittees identify the sources of discharges and pollutants to or from the MS4s as outside of their legal authority to prohibit or otherwise control, then they are not passively receiving and discharging pollutants, even if they are providing free and open access to the MS4s. The data and information that the Copermittees collect to identify the third party sources can provide the evidence that the Copermittees are not responsible for the discharges and pollutants from the MS4s that can be attributed to third parties. Until the data and information are provided to identify those third parties, and demonstrate those parties are not subject to the Copermittees' legal authority, then the Copermittees are responsible for all of the discharges to and from their MS4s unless such discharges are authorized by a separate NPDES permit.</p>

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Fnd-5	FINDINGS
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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Fnd-6	FINDINGS	
	<p>COMMENT: <i>Modify Finding 15 to recognize that the discharge of all pollutants from the MS4 is subject to the MEP standard.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert Finding 15 is inaccurate. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the MEP standard applies to both non-storm and water storm water, not just storm water.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment and incorporates its responses to comments on this topic from the San Diego Water Board's adoption proceedings on Order No. R9-2013-0001.</p> <p>The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. The San Diego Water Board also disagrees that Finding 15 of Order No. R9-2013-0001 should be revised. Finding 15 accurately states the requirements of the Clean Water Act. The San Diego Water Board maintains that MEP standard only applies to pollutants in storm water. See also, Memorandum from San Diego Water Board Counsel to San Diego Water Board dated 5 November 2009, incorporated by reference herein.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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Fnd-7	FINDINGS	
	<p>COMMENT: <i>Modify Finding 29 to clarify single water board regulations of Cities of Lake Forest, Laguna Woods, Laguna Hills.</i></p> <p>The City of Lake Forest provided suggested language changes to Finding 29 of the Tentative Order to clarify single water board regulation of the Cities of Lake Forest, Laguna Woods, and Laguna Hills.</p> <p>Suggested language changes were for the most part accepted by the San Diego Water Board.</p>	City of Lake Forest
	<p>RESPONSE: The San Diego Water Board agrees with most of the suggested language changes proposed by the City of Lake Forest.</p> <p>The City of Lake Forest provided suggested language changes to Finding 29 of the Tentative Order to clarify single water board regulation of the Cities of Lake Forest, Laguna Woods, and Laguna Hills.</p> <p>The Tentative Order was modified to reflect, for the most part, the City's recommended changes. The word "wholly" was not added as requested by City of Lake Forest because it is unnecessary to clarify the terms of the Water Code section 13228 agreement. The permit language and the Water Code section 13228 designation agreement specify in detail how the Santa Ana Water Board and the San Diego Water Board will, respectively, regulate the City of Lake Forest as well as the Cities of Laguna Hills and Laguna Woods under each Region's respective MS4 permits. The San Diego Water Board notes that the current Riverside County MS4 permit (Order No. R9-2010-0016) includes the term "wholly" but the San Diego Water Board will consider removing that term when it considers the County of Riverside and Riverside Copermittees' Report of Waste Discharge for the reason set forth above.</p>	

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Fnd-8 FINDINGS	
	<p>COMMENT: <i>Modify Finding 31 to state the Tentative Order is more stringent than Federal Law, requiring an analysis of the factors pursuant to Water Code Section 13241.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment and incorporates its responses to comments on this topic from the San Diego Water Board's adoption proceedings on Order No. R9-2013-0001.</p> <p>The provisions of the Tentative Order do not go beyond the requirements of the Clean Water Act or Code of Federal Regulations. The San Diego Water Board again considered economic information in developing the Tentative Order No. R9-2015-0001 using the best available information, but did not do so in accordance with an analysis pursuant to California Water code section 13241. The provisions of the Tentative Order No. R9-2015-0001 are based on and fully supported by federal requirements, as demonstrated by the legal authority provided by the Clean Water Act and Code of Federal Regulations sections cited in the Fact Sheet. Thus, the San Diego Water Board maintains that an analysis pursuant to California Water Code section 13241 is not required. Federal NPDES regulations do not require that the San Diego Water Board conduct a cost-benefit analysis.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>Please also see response to comment Lgl-4 and Lgl-5.</p>

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Fnd-9	FINDINGS	
	<p>COMMENT: <i>Delete Finding 32. The San Diego Water Board has no legal ability to determine whether a particular mandate is unfunded.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District assert that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: See response to comment Lgl-5.</p>	

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A-1 PROVISION A: PROHIBITIONS AND LIMITATIONS	
A-1	<p>COMMENT: <i>Tentative Order needs to include language that shows a clear pathway to compliance with the discharge prohibitions, receiving water limitations, and effluent limitations in Provision A. 1.</i></p> <p>Orange County and Concurring Cities, the Orange County Flood Control District, Riverside County Copermittees and the City of San Diego each submitted comments requesting that the requirements of Provision A be modified to provide a clear linkage between the prohibitions and limitations of Provisions A.1 to A.3 with the iterative process required under Provision A.4 to be demonstrated through the implementation of the Water Quality Improvement Plans. The commenters are concerned that the language of Provision A, if not modified, will be interpreted as requiring strict and immediate compliance with the prohibitions and limitations, and the implementation of the iterative process would not be enough to demonstrate compliance with the prohibitions and limitations. Among the many recommended modifications to the requirements of Provision A, the commenters are generally requesting that the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a specifically state that implementation of Provision A.4 constitutes compliance. Furthermore, the Copermittees have requested that Provision A.4 explicitly state that the implementation of the iterative process constitutes compliance with any of the prohibitions and limitations under Provision A.1 to A.3, including compliance with the effective prohibitions of non-storm water discharges to the MS4s, and the TMDL requirements.</p> <p>During adoption of Order No. R9-2013-0001, commenters from environmental organizations were strongly in support of maintaining the existing language and asserted that modifications to Provision A would “weaken” the requirements, or provide “safe harbor” and would violate federal anti-backsliding requirements.</p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • Riverside County Copermittees • City of San Diego
	<p>RESPONSE: The San Diego Water Board understands the concerns that the Copermittees have expressed regarding the requirements of Provision A and the apparent lack of a linkage between the iterative process under Provision A.4 and the strict compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. This language, however, is consistent with the precedential language that was issued under State Water Board Order WQ-1999-05 and has been implemented in all MS4 permits issued by the San Diego Water Board since 2001. The State Water Board has not yet issued an order or taken other action to supersede this precedential language. Recently, the State Water Board issued a Draft Order on November 21, 2014 in response to petitions challenging the 2012 Los Angeles MS4 Permit in which compliance with receiving water limitations is a major focus. Although the State Water Board's Draft Order generally upholds the Los Angeles Water Board Order, no final decision has been made. The State Water Board held a December 16, 2014 public workshop to receive comments and discuss the Draft Order with</p>

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS
	<p>Copermittees and interested persons. No decision was made at the workshop. The State Water Board did not indicate when a final Order might be issued.</p> <p>Under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives. The discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c and A.2.a are consistent with this requirement, and are included in all NPDES permits and Waste Discharge Requirements issued by the San Diego Water Board. These are the fundamental requirements that protect water quality by ensuring that discharges comply with applicable water quality standards to ensure protection of receiving water beneficial uses. The San Diego Water Board does recognize an increasing body of monitoring data indicates that water quality standards are in fact not being met by many of the Copermittees' MS4 discharges. The San Diego Water Board has as a matter of practice not sought to enforce the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a where the Copermittees are actively engaged in implementing the other requirements of the MS4 permit. The focus of the previous MS4 permits and the San Diego Water Board has been on compliance with implementation of the actions required by the permit, rather than the water quality outcomes that are expected to be achieved.</p> <p>As noted by the Copermittees, however, the approach of the Tentative Order is a significant departure from the approach of previous MS4 permits. Previous MS4 permits did not provide the Copermittees enough flexibility to truly implement an iterative process to adaptively manage their programs to identify innovative new ways to improve the quality of discharges from their MS4s or in the receiving waters, because the actions required by the permit were relatively fixed and prescriptive. In contrast, the Tentative Order is structured to allow the Copermittees to take advantage of the iterative process and adaptively manage their programs to focus on achieving outcomes.</p> <p>Since the State Water Board has yet to issue a final decision response to the petitions challenging the 2012 Los Angeles Water Board MS4 Permit, the San Diego Water Board did not revise Provisions A.1.a, A.1.c, A.2.a and A.4, and the language of Provision A remains consistent with the language in precedential State Water Board Order No. WQ 1999-05. However, the San Diego Water Board supports the concept of an alternative compliance option and considered it during the adoption of the Regional MS4 Permit in 2013.</p> <p>The San Diego Water Board will consider incorporation of the Riverside County Copermittees into the Regional MS4 Permit in late 2015 or early 2016. As part of this process, the San Diego Water Board will also consider the incorporation of a well-defined, transparent, and finite alternative compliance option similar to the option</p>

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS
	<p>proposed in 2013, but also consistent with any decisions/guidance from the State Water Board. A rigorous alternative compliance option would allow the Copermittees that are willing to pursue significant receiving water quality improvements beyond the iterative process to be deemed in compliance with the receiving water limitations. Inclusion of the alternative compliance option during the extensive public process for the Riverside County Copermittees will provide the stakeholders the necessary opportunity to discuss, comment, and suggest changes to any proposed language.</p> <p>An administrative finding documenting the San Diego Water Board's intent to consider incorporation of an alternative compliance option during the MS4 NPDES permit reissuance proceedings for the Riverside County Copermittees has been added to the Tentative Order.</p>

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Water Quality Improvement Plans should be the foundation for a BMP-based compliance approach.</i></p> <p>Orange County and Concurring Cities, the Orange County Flood Control District, Riverside County Copermittees and the City of San Diego request that Copermittees be allowed to utilize the development and implementation of the Water Quality Improvement Plans as a compliance mechanism for the prohibitions and limitations of Provisions A.1 to A.3.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District • Riverside County Copermittees • City of San Diego
	<p>RESPONSE: The San Diego Water Board understands the concerns raised by the comments from the Copermittees.</p> <p>The Tentative Order includes the State Water Board precedential language. At this time the San Diego Water Board has chosen to keep the State Water Board precedential language in Attachment 1 to the Tentative Order until the State Water Board takes action with regards to this issue. Should the State Water Board decide to issue revised precedential language regarding mechanisms for compliance with Provision A.1 to A.3, the San Diego Water Board will then update the Regional MS4 Permit as necessary.</p> <p>Additionally, the discussion in the Fact Sheet under Provision B6 describes the San Diego Water Boards intentions to use the Water Quality Improvement Plans as functionally equivalent documents to TMDL Load Reduction Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment A-1.</p>	

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B-2	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	<p>COMMENT: <i>Water Quality Improvement Plans need to be based on regionally appropriate water quality standards that reflect sustainable conditions for beneficial uses.</i></p>	<p>Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board understands the concerns raised by the Riverside County Copermittees, however the proceedings on the Tentative Order are not the proper forum for addressing proposals to modify Basin Plan water quality standards.</p> <p>Water quality standards and beneficial uses are established in the San Diego Water Board's Basin Plan and not the Tentative Order /. The San Diego Water Board suggests the Riverside County Copermittees bring the comment forth during the San Diego Water Boards process for conducting the Triennial Review of Basin Plan water quality standards which is currently underway. . It is within the Triennial Review process that the San Diego Water Board reviews the Basin Plan water quality standards and beneficial uses. Information on the Triennial Review process can be accessed on the San Diego Water Board website at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/tri_review.shtml</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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B1-1	PROVISION B.1: Watershed Management Areas	
	<p>COMMENT: <i>Revise footnote 2 to Table B-1 to clarify single water regulation of City of Lake Forest.</i></p> <p>The City of Lake forest suggests revision to footnote 2 to Table B-1 to clarify single board regulation.</p>	City of Lake Forest
	<p>RESPONSE: The San Diego Water Board understands the City's comment and has modified the footnote language to be consistent with the language in Finding 29. Please see response to Comment Fnd-7.</p>	

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B1-2 PROVISION B.1: Watershed Management Areas		
B1-2	<p>COMMENT: <i>Revise language in Tentative Order to clarify NPDES permit is applicable to discharges from Copermittees MS4s.</i></p> <p>The City of San Diego requests that the requirements of the Tentative Order “clarify” the responsibilities of the Copermittees to develop a Water Quality Improvement Plan “for their MS4 discharges within” each of the Watershed Management Areas.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees with the comment that clarification is necessary.</p> <p>The San Diego Water Board did not revise the language with the qualifying phrases requested by the Copermittees. The Copermittees are required to establish the legal authority to implement the requirements of the Tentative Order. The Tentative Order does not require the Copermittees to implement requirements outside of their jurisdictions or outside of their legal authority.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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B3-1 PROVISION B.3: Water Quality Improvement Goals, Strategies and Schedules		
	<p>COMMENT: <i>Provision B.3.a should explicitly state that the action levels, interim goals and final goals are not enforceable limitations.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the comment.</p> <p>After further clarification with the commenters on their references to footnotes in Provision B and C, Footnote 8 to Provision C.1 for Non-Storm Water Action Levels (NALs) and Footnote 10 to Provision C.2 Storm Water Action Levels (SALs) clearly state NALs and SALs incorporated in the Water Quality Improvement Plans are not considered by the San Diego Water Board to be enforceable effluent limitations, unless the NAL or SAL is based on a WQBEL expressed as an interim or final effluent limitation for a TMDL in Attachment E and the interim or final compliance date has passed.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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C-1	PROVISION C: ACTION LEVELS	
	<p>COMMENT: <i>The Tentative Order should enable the Copermittees to apply NALs/SALs based on the priorities of the Water Quality Improvement Plan and/or the IDDE program.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District are concerned that the Tentative Order contradicts itself by stating Copermittees must develop and incorporate numeric NALs and SALs into the Water Quality Improvement Plan and/or IDDE program, then mandates Copermittees include all of the numeric action levels identified in tables C-1 to C-5. The Copermittees expressed concern that requiring the prescribed NALs and SALs under Provision C would result in unnecessary analyses for constituents that are not a priority identified in the Water Quality Improvement Plan.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the request to modify the requirements as suggested.</p> <p>The NALs and SALs under Provision C have been included to support the development and prioritization of the water quality strategies that will be implemented based on the highest priority water quality conditions identified by the Copermittees in the Water Quality Improvement Plans.</p> <p>The NALs and SALs have been included as a tool that the Copermittees and the San Diego Water Board can utilize to determine if the Copermittees are implementing the requirements of the Clean Water Act for MS4 permits to <i>effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges from the MS4 to the MEP.</i> The NALs and SALs are not new, and are included in both of the current MS4 permits issued to Orange County (Order No. R9-2009-0002) and Riverside County (Order No. R9-2010-0016).</p> <p>The Copermittees are required to effectively prohibit non-storm water discharges to their MS4s, which in turn should result in little to no discharges from their MS4s to receiving waters. If there are non-storm water discharges from the Copermittees' MS4s to receiving waters, those discharges should only be NPDES permitted discharges. Even if those discharges are NPDES permitted discharges, the Copermittees are responsible for demonstrating that those discharges are not illicit discharges by identifying the sources as NPDES permitted discharges.</p> <p>The prescribed NALs in Table C-1 through C-4 are associated with most if not all the pollutants that are known</p>	

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C-1	PROVISION C: ACTION LEVELS
	<p>or suspected to be causing or contributing to impairments in water bodies on the 303(d) List for the San Diego Region. The NALs are appropriately based on water quality objectives because non-storm water discharges that do not contain pollutants at levels in exceedance of the NALs are not expected to cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>Thus, the prescribed NALs have been included to allow the Copermittees to prioritize their efforts in effectively prohibiting unpermitted non-storm water discharges to their MS4s, demonstrate that they have effectively prohibited non-storm water discharges to their MS4s that could cause or contribute to exceedances of water quality standards, or identify NPDES permitted sources that are resulting in discharges from their MS4s that are causing or contributing to exceedances of water quality standards in receiving waters. In any case, the prescribed NALs are necessary to allow the San Diego Water Board to determine if the Copermittees are effectively prohibiting non-storm water discharges to the MS4. The Tentative Order also allows Copermittees the flexibility to develop and include NALs, for which values are not already included provision C-1, for those pollutants that are causing or contributing, or threatening to cause or contribute to a condition of pollution or nuisance in receiving waters associated with the highest priority water quality conditions related to non-storm water discharges from the MS4s into the Water Quality Improvement Plans and IDDE Program. The Tentative Order does not prohibit the Copermittees from using any “previously established NALs” in addition to those listed in C-1 to C-4.</p> <p>In contrast, the prescribed SALs are not based on water quality objectives, but set at higher levels because the San Diego Water Board recognizes that reducing pollutants in wet weather discharges from the MS4s to water quality objectives is challenging. The prescribed SALs, however, will allow the Copermittees to prioritize their efforts in reducing pollutants in storm water discharges from their MS4s, and allow the San Diego Water Board to determine if the Copermittees are reducing pollutants in storm water discharges from their MS4s to the MEP.</p> <p>The San Diego Water Board disagrees with the concerns about monitoring for constituents that are not associated with the highest priority water quality conditions. Periodically analyzing non-storm water and storm water discharges from the Copermittees’ MS4 for pollutants other than those associated with the highest priority water quality conditions is necessary if the Copermittees would like to re-prioritize or identify new priority water quality conditions that will be addressed. The San Diego Water Board does recognize that there is a cost associated with analyzing for additional constituents. Thus, the San Diego Water Board has modified the MS4 outfall monitoring requirements to reduce the number of dry weather MS4 outfall monitoring stations that must be analyzed (see Provision D.2.b.(2)(b) of Order No. R9-2013-0001) and provided the Copermittees some flexibility to modify the analytes for the wet weather MS4 outfall monitoring stations (see Provision</p>

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C-1	PROVISION C: ACTION LEVELS
	<p>D.2.c.(5)(f).</p> <p>As for the concerns about the chemically-based NALs and the biologically- or physically-based numeric goals for receiving waters, the San Diego Water Board disagrees that they cannot be linked or may be incompatible. Biologically- or physically-based numeric goals will likely be measured in the receiving waters. The chemically-based NALs apply to the MS4 outfalls. The quality of the MS4 discharges and the improvement of biological or physical measurements can be linked. Both are likely necessary to demonstrate that MS4 discharges are either not causing or contributing to a biological or physical impairment of the receiving water, or an improvement in MS4 discharges is resulting in improvements in the biological or physical conditions of the receiving water.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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D-1 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p>COMMENT: <i>Copermittees need to have the flexibility to adjust analytical monitoring in the water quality improvement plans based on assessments of current sources that may contribute to the section 303(d) water body impairments.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requested relief of analytical monitoring requirements if supporting information can be provided to document the current pollutant concentrations or may provide historic information to support the absence of usage of these constituents in the MS4 drainage area.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the suggested revisions to the Tentative Order.</p> <p>Monitoring required in Provision D of Attachment No. 1 to the Tentative Order describes the minimum monitoring required to inform the Copermittees, San Diego Water Board, and the public on the progress the Copermittees make within their Phase 1 storm water programs to: 1) effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water from the MS4 to the maximum extent practicable; and 2) implement strategies to control the discharge of pollutants in MS4 discharges and improve receiving water quality. These minimum monitoring requirements do not prohibit the Copermittees from conducting monitoring for which it considers necessary to identify constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan.</p> <p>Each Copermittee is required to achieve compliance with the Basin Plan prohibitions and receiving water limitations (Provision A.1.a, A.1.c, and A.2.a, in Attachment 1 to the Tentative Order) through implementation of control measures and other actions as specified in the Tentative Order. The monitoring and assessment information collected and reported is expected to be key to the iterative approach and adaptive management process required by the Tentative Order (Provision A.4 of Attachment 1). Under the adaptive management provision, Copermittees are expected to change their monitoring programs to collect the necessary data for them to be able to demonstrate that their jurisdictional storm water management programs are making measurable progress towards achieving compliance with Basin Plan prohibitions and receiving water limitations. Changes to the monitoring programs would be presented during the development of or subsequent updates to the Water Quality Improvement Plan. All Copermittees are required to conduct the minimum monitoring described in Provision D, however through the adaptive management approach in Provision A of Attachment 1 to the Tentative Order, Copermittees are allocated sufficient flexibility to make changes to their monitoring program to collect the data most necessary to that their control strategies and other actions are</p>	

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D-1	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS
	<p>making measurable progress towards effectively eliminating non-storm water discharges, and reducing pollutants in storm water to the maximum extent practicable to ultimately achieve compliance with the Basin Plan prohibitions and receiving water limitations (Provision A in Attachment 1 to the Tentative Order).</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment Gnl-2.</p>

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D-2 PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS		
	<p><u>COMMENT:</u> <i>Modify Tentative Order requirements to be consistent with language in the South Orange County Wastewater Authority permit language.</i></p> <p>The San Diego Water Board Monitoring and Assessment staff requests the Tentative Order be modified to update the Unified Beach Water Quality Monitoring language.</p>	<p>San Diego Water Board Staff of the Monitoring and Assessment Group</p>
	<p><u>RESPONSE:</u> The San Diego Water Board agrees with the comment and has made the suggested language changes to the Tentative Order</p> <p>The Tentative Order language was revised to be consistent with the December 5, 2014 Executive Officer's letter directive, issued pursuant to California Water Code section 13383, requiring Copermittee participation in and shared responsibility for implementation of the Unified Beach Water Quality Program. Effective April 1, 2015, the requirements established through issuance of this Water Code section 13383 letter directive will become an enforceable component of the monitoring and reporting requirements in the Tentative Order.</p>	

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E-1 PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS		
E-1	<p>COMMENT: <i>Water Quality Improvement Plans and related Jurisdictional Runoff Management Programs should be streamlined and focus on the watershed's highest priorities.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District commented that the Tentative Order, Attachment 1 at Provision E deviates from the strategic and adaptive approach of the Water Quality Improvement Plan concept, and is instead a "one-size-fits-all" approach. The commenters recommend modifying the Tentative Order so that the Water Quality Improvement Plans and jurisdictional runoff management programs can be streamlined and focus on the highest priorities within the watersheds.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plan framework allows for the identification and development of a storm water management program built around the highest priority water quality conditions within a specific watershed. The Tentative Order is structured so that the Water Quality Improvement Plan identifies the highest priority conditions of concern for a particular watershed, and also strategies, numeric goals, and schedules for making improvements for those conditions of concern. The jurisdictional runoff management programs are meant to be the implementing mechanism for the Water Quality Improvement Plans, i.e. they must incorporate the strategies identified in the Water Quality Improvement Plans.</p> <p>The San Diego Water Board disagrees that the requirements of Provision E deviate from the strategic and adaptive approach of the Water Quality Improvement Plan concept and that modifications are needed. The commenters should note that the requirements of the Provision E of the Tentative Order are substantially less prescriptive than those of the previous Fourth Term MS4 permits. Whereas the requirements of the Fourth Term MS4 permits were very specific, detailed, and prescriptive, the requirements of the Tentative Order include only basic program elements that meet the minimum requirements of 40 CFR 122.26(d)(2)(iv), but include much more flexibility in how the Copermittees implement their programs. The Copermittees can emphasize or de-emphasize different aspects of their programs to accomplish the overarching goals of the Water Quality Improvement Plans. For example, a Copermittee may choose to emphasize a certain program element by increasing the frequency of BMP inspections for discharges that are likely to contribute to the priority conditions of concern, while maintaining other program elements at the minimum required levels. Unlike the Fourth Term MS4 permits, the Tentative Order allows each Copermittee to specify, for example, the minimum inspection frequency for each specific program element. In this way, Copermittees are allowed to run their programs at minimum baseline levels, but also direct their resources where needed to achieve improvements in water quality and to address the highest priority conditions of concern.</p>	

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E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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E1-1	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>COMMENT: <i>The Copermittees are only responsible for administering and enforcing the codes and ordinances applicable to their jurisdictions.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the requirements of Provision E.1 be modified to specify that the legal authority established by the Copermittees applies only to discharges within their jurisdictions, and that it is unnecessary to include language pertaining to discharges regulated by the Statewide Industrial and Construction General Permits.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to specify that the legal authority established by the Copermittees is only applicable to their jurisdictions.</p> <p>The requirements of Provision E.1 are consistent with the requirements under 40 CFR 122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The legal authority that each Copermittee is required to establish for its jurisdiction is logically only expected to apply to its jurisdiction.</p> <p>Provision E.1.a.(2) is consistent with 40 CFR 122.26(d)(2)(i)(A), which requires the Copermittee to <i>“Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”</i> 40 CFR 122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Even if there are industrial and construction sites regulated by the Statewide Industrial or Construction General Permits, those sites are still subject to the Copermittees ordinances and the Copermittee must have the legal authority to control discharges from those sites.</p> <p>Provision E.1.a.(10) is consistent with 40 CFR 122.26(d)(2)(i)(F), which requires the Copermittee to <i>“Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”</i> Therefore no modifications are warranted, and the San Diego Water Board did not make revisions to the requirements of Provision E.1 requested by the Commenters.</p>	

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E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	<p>COMMENT: <i>The requirement for third party BMP effectiveness documentation is duplicative.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that Provision E.1.a.(8) of the Tentative Order requires the Copermittees to obtain legal authority to require documentation of the effectiveness of BMPs, and that this requirement sets up a process for the establishment of multiple third party monitoring programs and expenditure of public funds to monitor the effectiveness of BMPs. The commenters state that this requirement ignores the fact that Copermittees have already established legal authority for their development standards, and is therefore redundant.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that Provision E.1.a.(8) sets up a process for the establishment of multiple third party monitoring programs and expenditure of significant public funds to monitor the effectiveness of BMPs. The Provision simply states that each Copermittee must establish legal authority that authorizes the Copermittee to require documentation on the effectiveness of BMPs from any of its dischargers. The Copermittee is not required to exercise this legal authority, but the legal authority must be established and available to the Copermittees in the event that the Copermittee could benefit from obtaining this type of information. The requirement is not duplicative because the legal authority to impose development standards is separate from the legal authority to require documentation on BMP effectiveness.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Modify the Illicit Discharge Detection and Elimination Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Illicit Discharge Detection and Elimination Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Illicit Discharge Detection and Elimination Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.2. They are required to meet a minimum baseline program (with limited prescriptiveness compared to previous Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework may focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans. All illicit discharges are to be actively detected and eliminated in a prioritized manner.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E2a-1 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>Copermittees should be given flexibility to prioritize their IDDE program to focus on non-storm water discharges likely to be a source of pollutants.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the requirements under Provision E.2.a be revised to allow the Copermittees to focus on eliminating non-storm water discharges that are a source of pollutants and not require the elimination of all non-storm water discharges.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the commenter's request. Provision E.2 does provide the Copermittees with a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. The Copermittees are required to prioritize the non-storm water discharges that they will address, and eliminate the highest priority non-storm water discharges first.</p> <p>The Clean Water Act requires NPDES permit for MS4s to effectively prohibit non-storm water discharges to the MS4. As explained in the Fact Sheet, the Phase I Final Rule clarifies that non-storm water discharges through an MS4 are not authorized under the CWA (55 FR 47995): <i>"Today's rule defines the term "illicit discharge" to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer... Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit."</i></p> <p>Thus, all non-storm water discharges that do not have authorization under an NPDES permit or are a category of non-storm water discharges that have been identified as a source of pollutants must ultimately be removed (i.e. prevented or eliminated) from the MS4 or become subject to an NPDES permit. The requirements under Provisions E.2.a.(1) and E.2.a.(3) are consistent with the Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges.</p> <p>The non-storm water categories listed under Provision E.2.a.(3) generally are expected to be discharged from natural, uncontrollable, or unanticipated sources. Non-storm water discharges from foundation drains and footing drains designed to be above the groundwater table are not generally expected to occur. If they do occur, the Copermittee is expected to implement its illicit discharge detection and elimination program to</p>	

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E2a-1	PROVISION E.2.a: Non-Storm Water Discharges
	<p>determine if the discharge is transient or persistent, a source of pollutants or not, and whether the discharge must be eliminated in accordance with its priorities.</p> <p>In general, the requirements under Provision E.2 are focused on the ultimate removal of unauthorized non-storm water discharges to the MS4 to "effectively prohibit" non-storm water discharges to the MS4, as required by the Clean Water Act. The San Diego Water Board is not requiring the Copermittee to enforce any NPDES permits issued by the San Diego Water Board or State Water Board. The Copermittees are only required to use their legal authority to prohibit illicit discharges to their MS4s established pursuant to Provision E.1.a.(1).</p> <p>The San Diego Water Board did not revise Provision E.2 as recommended by the commenters.</p>

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E2a-2	PROVISION E.2.a: Non-Storm Water Discharges	
	<p>COMMENT: <i>Modify Provision E.2.a.(5) to reflect the language previously adopted by the Regional Board in Order No. R9-2009-0002 regarding emergency firefighting discharges.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the Tentative Order be modified to clarify that there should not be a circumstance in which the Copermittees or the San Diego Water Board would identify emergency firefighting discharges as illicit discharges or a significant source of pollutants, and therefore in no instance would require BMP implementation.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the language in Provision E.2.a.(5) requires revision. This Provision does not require the implementation of BMPs for emergency firefighting discharges, nor does it prohibit emergency firefighting discharges to the MS4. Provision E.2.a.(5)(b) only requires the Copermittees to “encourage” the implementation of BMPs in emergency situations. Provision E.2.a.(5)(b) is a recommendation for the Copermittees to implement, not a requirement for compliance.</p>	

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E2a-3 PROVISION E.2.a: Non-Storm Water Discharges		
	<p>COMMENT: <i>The Tentative Order should not require the elimination of non-storm water discharges as a part of the IDDE Program.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that Provision E.2.a.(7) misapplies the federal regulations that require the Copermittees to identify non-storm water discharges as illicit discharges prior to having an obligation to effectively prohibit it, and therefore the Provision should be removed.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to remove Provision E.2.a.(7) because it is consistent with Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. Please see the response to comment E2a-1 for further discussion.</p>	

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E3-1 PROVISION E.3: Development Planning		
	<p>COMMENT: <i>The Development Planning Provisions must be modified so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each Watershed Management Area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Development Planning Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Development Planning Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.3. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework may focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3b-1	PROVISION E.3.b: Priority Development Projects	
	<p>COMMENT: <i>Portions of redevelopment projects that already have water quality treatment BMPS should not be subject to the new PDP requirements.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that language be added to the Tentative Order that would specify structural BMP requirements are not applicable to Priority Development Projects (or portions thereof) if the project already has implemented structural BMPs pursuant to requirements of prior MS4 permits.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees in concept with the Copermittees' request.</p> <p>Although some projects may already have structural BMPs onsite, the performance requirements of those BMPs do not necessarily meet the MEP requirements of the Tentative Order. Priority Development Projects subject to the requirements of older MS4 permits may not have BMPs that meet the numerical storm water pollutant control retention performance standard, or the flow control hydromodification performance standard. Therefore, when redevelopment sites, that were subject to older MS4 permit requirements, want to create and/or replace 5,000 square feet or more of impervious surface on the project site (collectively over the entire project site on an existing site with 10,000 square feet or more of impervious surfaces), the redevelopment site must update the BMPs during the design phase.</p> <p>Furthermore, the commenter should note that the pollutant control and hydromodification management BMP requirements of the Tentative Order are the same as the previous South Orange County MS4 permit, Order No. R9-2009-0002. Therefore Priority Development Projects that were subject to these requirements developed in 2009 should already be in compliance with the requirements of the Tentative Order.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3b-2 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: <i>Tentative Order should include a priority development project exemption for flood control and stream restoration projects.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request that the Tentative Order should include exemptions for flood control and stream restoration projects from the requirement to implement structural BMPs since they are not a source of pollutants.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board believes that it may be suitable to relax the structural BMP standards for, or exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, water quality protective measures may be appropriate for implementation in flood control projects, but such options would not be evaluated if the Tentative Order provided a blanket exemption. Furthermore, 40 CFR 122.26(d)(2)(iv)(A)(4) requires Copermittees to include in their applications mechanisms “to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.” Such evaluations would not occur if flood control projects were provided blanket exemption from Priority Development Project status, therefore a blanket exemption is not appropriate.</p> <p>Stream restoration projects do not fit any of the Priority Development Project categories, therefore no exemptions are needed.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E3b-3 PROVISION E.3.b: Priority Development Projects		
	<p>COMMENT: <i>Tentative Order should include a priority development project exemption for emergency public safety projects.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request the Tentative Order include exemptions for emergency public safety projects from the requirement to implement structural BMPs because <i>a delay due to the development and approval of a Standard Stormwater Mitigation Plan (SSMP) would compromise public safety, public health and/or the environment.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Tentative Order to exempt emergency public safety projects from the requirement to implement structural BMPs is necessary.</p> <p>The Commenters state that emergency projects will be implemented immediately where public safety, public health, and/or the environment is threatened, and that there will be no time for the development, processing, and plan check for these projects. The San Diego Water Board agrees. Provision E.3 describes requirements that pertain to development <i>planning</i>. Emergency situations, by definition, are not planned projects and therefore do not involve the design, approval, and construction of a building or structure. Therefore an explicit exemption is not needed. Regardless of the conditions (i.e. emergency conditions) under which a public safety project requires installation, if a public safety project meets the Priority Development Project criteria of Provision E.3.b, then the public safety project needs to include the structural BMP controls of Provision E.3.c.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E3c-1	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: <i>Modify the Tentative Order to allow flexibility in the structural BMP performance standards if watershed-specific performance standards are developed in the water quality improvement plans.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District submitted comments stating that the Copermittees should be given the opportunity to develop alternative BMP performance standards consistent with the goals of the Water Quality Improvement Plans.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board agrees that greater improvements to water quality in the watersheds may be realized if Priority Development Projects were allowed to implement some requirements offsite, as opposed to strictly onsite. For this reason, the Attachment No. 1 of the Tentative Order allows for “alternative compliance” in instances where the Copermittee determines that offsite measures will have a greater overall water quality benefit for the Watershed Management Area than if the Priority Development Project were to implement structural BMPs onsite. Consequently, watershed-specific structural BMP requirements are present in Attachment No. 1 to the Tentative Order that provide for allowable compliance offsite. Therefore no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>The alternative compliance program, which is described in Provision E.3.c.(3), is an option for Priority Development Projects where the Copermittee has participated in the development of a Watershed Management Area Analysis as part of the Water Quality Improvement Plan (described in Provision B.3.b.(4)). Such an approach is consistent with the latest findings in hydromodification management by the scientific community. In the Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, the authors state: <i>“An effective [hydromodification] management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.”</i></p> <p>Consistent with the ideas brought forth by the SCCWRP report, in the optional Watershed Management Area Analysis of Provision B.3.b.(4), the Copermittees must develop watershed maps that include as much detail about factors that affect the hydrology of the watersheds as is available. Such factors included identification of areas suitable for infiltration, coarse sediment supply areas, and locating stream channel structures and constrictions. Once these factors are mapped and studied, the Copermittees can identify areas in the</p>	

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E3c-1	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
	<p>watersheds where “candidate projects” may be implemented that are expected to improve water quality in the watershed by providing more opportunity for infiltration, slowing down storm water flows, or attenuation of pollutants naturally via healthy stream habitat. These projects may be in the form of retrofitting existing development, rehabilitating degraded stream segments, identifying regional BMPs, purchasing land to preserve valuable floodplain functions, and any other projects that the Copermittees identify.</p> <p>Under the alternative compliance program, Priority Development Project applicants may be allowed to fund, partially fund, or implement a candidate project, in lieu of implementing structural BMPs onsite, if they enter into a voluntary agreement with the Copermittee permitting this arrangement. If compliance involves funding or implementing a project that is outside the jurisdiction of the Copermittee, then that Copermittee may enter into an inter-agency agreement with the appropriate jurisdiction(s).</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>Terminology is inconsistent with the use of "Low Impact Development" BMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the Provision E.3 to provide consistency with the use of "Low Impact Development" terminology.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has reviewed the suggested edits to Provision E.3 and did not find any suggestions pertaining to Low Impact Development terminology.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c1-2 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>The San Diego Water Board is requiring increasingly stringent onsite storm water retention requirements.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) submitted comments stating that the San Diego Water Board is requiring increasingly stringent onsite storm water retention requirements without evidence that existing requirements under Order No. R9-2009-0002 are not working to protect water quality and beneficial uses. The commenter asserts that the San Diego Water Board is proposing to enact the most stringent onsite requirements for storm water runoff anywhere in California, and that the requirements are less flexible than earlier MS4 permits.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The commenter incorrectly asserts that Attachment No. 1 to Tentative Order requires increasingly stringent onsite storm water retention requirements over and above the requirements of Order No. R9-2009-0002, the Fourth Term MS4 permit for Orange County Copermittees. The purpose of the onsite retention requirement in both the Tentative Order and Order No. R9-2009-0002 is to retain onsite the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event. This requirement has not changed from Order No. R9-2009-0002, and therefore the commenter is incorrect in stating that the San Diego Water Board is requiring additional prescriptive performance measures for retaining storm water runoff. This is the MEP standard recognized by the San Diego Water Board and is consistent with the Fourth Term Permits for Orange County and Riverside County (Order Nos. R9-2009-0002 and R9-2010-0016, respectively), as well as Santa Ana Water Board Order Nos. R8-2009-0030 and R8-2010-0033 (Orange County and Riverside County MS4 Permits, respectively), Los Angeles Water Board Order No. R4-2010-0108 (Ventura County MS4 Permit), and Los Angeles Water Board Order No. R4-2012-0175 (Los Angeles County MS4 Permit).</p> <p>Additionally, the San Diego Water Board disagrees with the commenter's assertion that the retention standard</p>	

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E3c1-2	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
	<p>is less flexible in the Tentative Order than in Order No. R9-2009-0002. In fact, the pollutant control and hydromodification management BMP requirements are more flexible in the Tentative Order than in the Fourth Term MS4 permits because the Tentative Order allows Priority Development Projects to comply by mitigating offsite, if doing so would provide greater water quality benefit for the watershed.</p> <p>Please see the response to Comment No. E3c1-2 for a discussion of the Watershed Management Analysis and the ability to perform offsite mitigation.</p>

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E3c1-3 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
<p>COMMENT: <i>The Tentative Order and Fact Sheet ignore the findings of the Copermittee's Report of Waste Discharge.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District submitted comments stating that there is little justification for the requirements of the Tentative Order based on the successes of the Copermittee's storm water programs, as reported in the Report of Waste Discharge (ROWD). The Copermittees report successes in reducing bacterial contamination in coastal waters during dry weather, and also assert that exceedances of total dissolved solids (TDS) and nutrients are unlikely due to urban sources. The commenters also state that the Tentative Order should recognize this uncertainty and not mandate on-site retention of runoff in the first instance where it may exacerbate the exfiltration of shallow groundwater with elevated TDS and nutrients.</p> <p>Finally, the commenters state that toxicity occurs sporadically in receiving waters in Orange County, indicating that the causes are not urban in nature, and that pesticide regulation is not within the Copermittees' jurisdictions.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
<p>RESPONSE: The San Diego Water Board recognizes that the Copermittees have made great strides in improvements in water quality and attainment of beneficial uses through rigorous implementation of their storm water management programs, but disagrees that the requirements of Attachment No. 1 to the Tentative Order should be removed.</p> <p>The Copermittees note that bacterial contamination is low during dry weather, but concede that achieving reductions in bacteria concentrations in wet weather is challenging. The San Diego Water Board is charged with protecting the beneficial uses of receiving waters at all times, regardless of season or weather conditions. The fact that there are still impairments with bacterial contamination in the receiving waters during the rainy season is exactly why the requirements in the Tentative Order are necessary.</p> <p>The San Diego Water Board agrees that it is worthwhile to understand the environmental significance TDS and nutrients and their relationship, or lack thereof, to urban sources. The San Diego Water Board disagrees, however, that the Tentative Order does not recognize the need to protect shallow groundwater from exfiltration of TDS and nutrients. Although the Tentative Order at Provision E.3.c.(1)(a) requires onsite retention of the design capture volume, this can be accomplished via several physical mechanisms such as interception, storage, evaporation, and evapotranspiration, in addition to infiltration. Therefore the Tentative Order does not automatically mandate on-site retention of runoff in the form of infiltration in every instance, as the commenter</p>	

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E3c1-3	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
	<p>asserts.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p> <p>See also response to comment Gnl-2.</p>

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E3c1-4 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>If priority development projects use alternative compliance, onsite conventional BMPs should not also be required.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that there is not adequate technical justification for requiring onsite conventional BMPs when a Priority Development Project is allowed alternative compliance offsite. The commenters state that requiring both is double mitigation that goes well beyond the MEP standard.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with this comment.</p> <p>Onsite pollutant treatment using conventional BMPs is a minimum general requirement to remove pollutants from runoff prior to its discharge to any receiving water. The storm water pollutant control BMP requirement for Priority Development Projects is to retain, onsite, the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume). If it is not technically feasible to retain pollutants within the design capture volume, onsite, then the Tentative Order provides for an alternative means of compliance. If the Priority Development Project proponent is allowed to implement BMPs offsite, then the portion of the design capture volume that is not reliably retained onsite must be treated prior to discharging pollutants into the receiving water. 40 CFR 131.10(a) prohibits use of the receiving water as a treatment system and therefore, requires treatment of runoff to occur prior to the discharge of runoff to receiving waters (See Finding 7 in Attachment 1 of the Tentative Order). If Priority Development Projects are allowed to forgo onsite conventional treatment of runoff, then the Priority Development Projects would discharge untreated runoff from their site into receiving waters which is prohibited under 40 CFR.</p> <p>Retention of the 85th percentile storm is clearly the MEP standard for storm water pollutant control, as represented by the Tentative Order and its Attachments, recently adopted MS4 permits in the state (R8-2009-0030 and R8-2010-0033; North Orange and Riverside County MS4 permits, R4-2010-0108 and R4-2012-0175; Ventura County and Los Angeles County MS4 permits, and San Diego Water Board Order Nos. R9-2009-0030 and R9-2010-0016; South Orange County and Riverside County MS4 permits), and elsewhere in the United States. Retention of anything less than the design storm volume must be mitigated because the MEP standard has not been met. Therefore, Attachment 1 to the Tentative Order includes a requirement that mitigation is necessary for the portion of the design storm volume that is not retained onsite because, although this remaining volume of storm water would be treated to some level, the MEP standard as represented by the structural BMP performance requirements would not have been met.</p>	

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E3c1-4	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

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E3c-5	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	<p>COMMENT: <i>Biofiltration BMPs should be sized for the design capture volume.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District assert that the requirement to oversize biofiltration BMPs to treat 1.5 times the design capture volume, if used to meet the pollutant control BMP requirements, is an increase over the prior Orange County MS4 permit. The commenters state that the Fact Sheet provides no technical justification for the sizing factor, and that biofiltration should be considered equivalent to onsite retention.</p> <p>The commenters also assert that Priority Development Projects that use biofiltration BMPs must also implement conventional BMPs, effectively requiring double mitigation when it is not needed.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The commenter incorrectly states that the requirement to size biofiltration BMPs to treat 1.5 times the design capture volume not reliably retained onsite is an increase from the prior Orange County MS4 permit (Order No. R9-2009-0002). This methodology of sizing the BMP was included in the Tentative Order <i>in addition to</i>, and not <i>in replacement of</i>, the methodology of sizing the BMP in Order No. R9-2009-0002. As a result, Priority Development Projects have two options for sizing biofiltration BMPs: 1.5 times the design capture volume not reliably retained onsite, OR a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the design capture volume not reliably retained onsite. The 1.5 sizing factor was included in the Tentative Order to offer more than one method of complying with the requirement. As described in the Fact Sheet, the 1.5 multiplier is based on the finding in the Ventura County Technical Guidance Manual that biofiltration of 1.5 times the design capture volume not retained onsite will provide approximately the same pollutant removal as retention of the design capture volume on an annual basis. This standard is consistent with the Los Angeles Water Board's Los Angeles County and Ventura County municipal storm water permits (Order Nos. R4-2012-0175 and R4-2010-0108, respectively).</p> <p>The commenter argues that biofiltration should be considered equivalent to other retention BMPs and therefore the 1.5 sizing factor is not needed. However, biofiltration is a flow-thru system, and therefore is not capable of retaining pollutants onsite (and preventing discharges of pollutants to receiving waters) in the equivalent manner as retention BMPs. The commenter compares the performance of harvest and use BMPs to biofiltration BMPs for the removal of total suspended solids, but fails to evaluate the performance of a range of retention BMPs, such as infiltration or evapotranspiration, which are widely accepted as effective pollutant control strategies.</p>	

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E3c-5	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements
	<p>The commenter incorrectly asserts that Priority Development Projects that use biofiltration as an alternative compliance option must also implement conventional BMPs, and in effect requires double mitigation. Provision E.3.c.(1)(a)(i) of the Tentative Order allows for the use of biofiltration BMPs where retention of the full design capture volume is not technically feasible, but does not also require the use of conventional treat-and-release BMPs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Hydromodification requirements are based on faulty foundational assumptions.</i></p> <p>Tory Walker, PE, submitted comments stating that the hydromodification requirements of the Tentative Order are based on faulty foundational assumptions. The commenter states that 1) the requirements cannot be based on a category of stream being either stable or highly dynamic, 2) flow rate reductions caused by dams reduces channel degradation, and runoff from Priority Development Projects may compensate for this and promote a more natural condition, and 3) as a result, the Tentative Order needs to accommodate more site-specific flexibility.</p>	Tory Walker Engineering
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order are based on faulty assumptions that preclude the accommodation of site-specific conditions. In fact, the Tentative Order incorporates the ability to accommodate site-specific conditions much more so than previous Fourth Term MS4 permits.</p> <p>The requirements in the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion or degraded instream habitat downstream of the Priority Development Project). Note that the requirement is not to control <i>all</i> flows, but only those flows that are expected to cause erosion downstream. Because the downstream receiving water may or may not be susceptible to erosion, then the BMPs needed upstream, on the Priority Development Project will necessarily vary. In essence, when configuring BMPs for a particular Priority Development Project, the project proponent must evaluate both site-specific conditions and runoff conditions expected from the project, as well as the receiving water's susceptibility to erosion. The requirements in the Tentative Order do not specify that channels are to be treated as either stable or highly dynamic.</p> <p>The commenter states that hydromodification impacts caused by dams could actually be offset by runoff from Priority Development Projects. The San Diego Water Board recognizes this possibility, therefore the Tentative Order allows for offsite compliance in lieu of implementing hydromodification management BMPs onsite, where the Copermittee finds offsite compliance to provide a greater water quality benefit to the watershed. In this example, if the Copermittees in the watershed complete the optional Watershed Management Area Analysis described in Provision B.3.b(4) and find that flows generated from Priority Development Projects would actually help offset the runoff impounded by upstream dams, then the Copermittees could allow the Priority Development Projects located downstream of the dams the ability to comply offsite. For these reasons, the</p>	

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E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>San Diego Water Board disagrees that the hydromodification management requirements of the Tentative Order should be modified.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Hydromodification management requirements should be based on a watershed management approach, be consistent with the WQIPs, and consider the current Copermittee HMPs.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District state that hydromodification management should be based on the conditions of receiving waters and on the impacts and potential impacts from development projects, and the basis for management should be an understanding of the watershed and specific receiving waters. The commenters state that hydromodification management objectives should be watershed specific and developed through a stakeholder process. The commenters assert that the hydromodification management requirements in the Tentative Order are a one-size-fits-all approach that does not allow consideration of watershed analysis or receiving water information.</p> <p>The commenters state that requirement to use the pre-development runoff conditions as the performance standard goes beyond federal law by taking the Clean Water Act's purpose to restore waters out of context of section 402(p). The requirement does not reflect the developed urban environment and negates the engineering efforts to date to protect life and property from floods.</p> <p>The commenters also state that identifying "naturally occurring" conditions for redevelopment sites is difficult; raising the technical question as to how far back a Copermittee goes historically in determining the proper predevelopment timeframe. The commenters conclude by suggesting an approach to hydromodification management that is consistent with the intent of the Water Quality Improvement Plan approach, and considers the Copermittee's current Hydromodification Management Plans.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order are a one-size-fits all approach and that the requirements do not allow consideration of watershed analysis or receiving water information.</p> <p>The requirements of the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects). Note that the requirement is not to control <i>all</i> post-project flows, but only those that are expected to <i>cause erosion or degraded habitat</i> downstream of the Priority Development Project. The performance standards of the Tentative Order are the same as those of the Commenters existing Order No. R9-2009-0002.</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>Since each Priority Development Project is expected to result in a specific post-project runoff condition, and the susceptibility of the receiving water to erosion could vary substantially based on location within a watershed, then the range of flows to control, and hence the specific BMPs required, will necessarily vary and is not a one-size-fits all requirement. In this way, the requirements in the Tentative Order specifically address both watershed and receiving water information.</p> <p>The Tentative Order allows for hydromodification management BMP implementation, and also exemptions, specific to the San Juan Watershed Management Area based on Copermittee's analysis of the watershed. See the response to Comment No. E3c1-1 regarding the Watershed Management Area Analysis as part of Water Quality Improvement Plan development, and how the Copermittees can use the results of the analysis to allow watershed-specific offsite mitigation in lieu of structural BMP implementation onsite, and also allow exemptions from the requirements.</p> <p>The Commenters incorrectly assert that the requirements in the Tentative Order attempt to restore waters to pre-Columbian conditions because of the requirement to use pre-development runoff conditions rather than pre-project runoff conditions in evaluating the need for hydromodification management BMPs. The Tentative Order requires the use of pre-development runoff conditions as a means of restoring a more natural hydrology to allow for stream rehabilitation, but there is no requirement to return the landscape to pre-Columbian conditions, nor is there a need to speculate how far back a Copermittee must go in determining the appropriate timeframe. Because pre-development runoff conditions cannot be precisely known for a redevelopment project, the Tentative Order allows the use of any readily available information to estimate pre-development runoff conditions. Pre-development runoff conditions for redevelopment projects are defined in Attachment C to the Tentative Order as "runoff conditions from the project footprint assuming infiltration characteristic of the underlying soil, and existing grade." A Priority Development Project must use available information to estimate these parameters, and there is no need to perform extensive historical assessments, as the commenter asserts.</p> <p>The requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds. Using the pre-project hydrology as a baseline for redevelopment projects results in propagating the unnatural hydrology of urbanized areas, which is largely made up of impervious surfaces. Flows from impervious surfaces are highly erosive and consequently have detrimental effects on receiving waters in the San Diego Region. Furthermore, propagating the urbanized flow regime does not support conditions for restoring degraded or channelized</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>stream segments, and would forever sentence such streams to the degraded state. Identification of areas suitable for rehabilitating degraded stream segments is a critical component of the Tentative Order and is expected to be incorporated into Copermittee's strategies for improving water quality in the watersheds.</p> <p>Finally, the Copermittees will be allowed to use the Hydromodification Management Plan developed under Order No. R9-2009-0002. The performance standards of the Tentative Order are the same as those of Order No. R9-2009-0002, therefore there is no need for the Copermittees to develop new requirements or methodologies, or otherwise update their Hydromodification Management Plan.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c2-3 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
E3c2-3	<p>COMMENT: <i>The San Diego Water Board is eliminating exemptions for hydromodification control when storm water runoff is conveyed to significantly hardened or engineered channels.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) assert that regulations are tending to require hydromodification controls for Priority Development Projects, regardless of receiving water susceptibility. CICWQ states that this direction is driven by environmental advocacy for removal of all concrete lined channels regardless of existing land uses and feasibility, and that such efforts ignore the vital role that flood control facilities play in urban infrastructure and the protection of life and property. The alignment, grade, and cross section of many urban streams have been irrevocably altered, and a regulatory requirement to return flows to pre-development conditions will not allow stream restoration to occur.</p> <p>CICWQ and the Riverside County Copermittees both submitted comments stating that the interim exemptions from hydromodification controls allowed for engineered channels should be granted outright without further study from the Copermittees.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects <p>Riverside County Copermittees</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the hydromodification management requirements in the Tentative Order mandate controls on Priority Development Projects, regardless of receiving water susceptibility.</p> <p>The requirements of the Tentative Order provide that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects). Note that the requirement is not to control <i>all</i> post-project flows, but only those that are expected to <i>cause erosion or degraded habitat</i> downstream of the Priority Development Project. Since each Priority Development Project is expected to result in a specific post-project runoff condition, and the susceptibility of the receiving water to erosion could vary substantially based on location within a watershed, then the range of flows to control, and hence the specific BMPs required, will necessarily vary and is not a one-size-fits all requirement. In this way, the requirements in the Tentative Order specifically address the susceptibility of the receiving water.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>The commenter correctly asserts that the driver behind the requirement to use the pre-development performance standard is the sustainability of geomorphically stable channels and the ability to return urbanized streams to a more natural state. As explained in the response to Comment No. E.3.c2-2, the requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds, which in turn supports conditions for rehabilitating degraded or channelized stream segments.</p> <p>Contrary to what the commenter asserts, the Tentative Order does not require Copermittees to remove concrete from channels that are engineered to relieve flooding and protect life and property. The Tentative Order provides exemptions for Priority Development Projects that discharge to receiving waters where there is little threat of erosion, and subsequently implementing BMPs onsite would do little to protect the beneficial uses of such receiving waters. The commenter correctly states that the exemption for engineered channels is temporary. However, the commenter should note that there is a high likelihood that exemptions for engineered channels will become permanent. The Tentative Order allows for the Copermittees to recommend permanent exemptions based on completion of an optional Watershed Management Area Analysis pursuant to Provision B.3.b.(4). As part of this effort, the Copermittees would identify, for example, areas in the watershed suitable for urban retrofitting, and areas suitable for stream rehabilitation. The Copermittees would also identify areas suitable for exemptions for hydromodification management, such as engineered channels that are needed for the protection of life and property. The interim exemption for engineered channels is not granted outright as permanent exemptions because the areas have not yet been analyzed in the context of stream rehabilitation opportunities. The San Diego Water Board does not anticipate the Watershed Management Area Analysis to be burdensome on the Copermittees because they have already completed a Watershed Management Planning Tool, with similar goals as the Watershed Management Area Analysis, as part of their storm water management programs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c2-4 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Hydromodification control requirements to avoid critical sediment yield areas are unnecessarily restrictive.</i></p> <p>The Construction Industry Coalition on Water Quality (CICWQ) assert that the hydromodification management requirements of the Tentative Order to “avoid critical sediment yield areas” are unnecessarily restrictive. The commenters state that several Priority Development Projects have been significantly delayed or stopped because of the inability to comply with this requirement.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects
	<p>RESPONSE: The San Diego Water Board disagrees that the requirements to avoid critical sediment yield areas are unnecessarily restrictive. The requirements are necessary to protect receiving waters from erosive flows caused by land development. As explained in the Fact Sheet to the Tentative Order, hydromodification, which is caused by both altered storm water flow and altered sediment flow regimes, is largely responsible for degradation of creeks, streams, and associated habitats in the San Diego Region. In an ongoing study by the Stormwater Monitoring Coalition to assess the health of streams throughout Southern California, researchers found that three of the four highest risk stressors to creeks (percent sands and fines present, channel alteration, and riparian disturbance) were related to physical habitat (Assessing the Health of Southern California Streams, Stormwater Monitoring Coalition, Fact Sheet). Researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22 percent can result in increases in peak flow rates for the two-year storm event of up to 100 percent (Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds, (Article 66). The Practice of Watershed Protection). Such changes in runoff have significant impacts on channel morphology.</p> <p>Placement of impervious surfaces as a result of urbanization is largely responsible for erosional impacts to</p>	

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E3c2-4	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>streams because placement of impervious surfaces encapsulates "good" sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks to help stabilize them. For this reason, the Tentative Order requires Priority Development Projects to avoid critical sediment yield areas, as defined by the Copermittees, or implement measures to allow coarse sediment to be discharged to receiving waters. Such measures are designed to protect receiving waters and avoid impacts experienced by past land development practices.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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E3c2-5 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Modify Tentative Order to clarify that the interim hydromodification exemptions are in place until the San Diego Water Board approves the BMP Design Manual.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District recommend that the interim timeframe exemptions for engineered channels and large rivers from hydromodification management remain in place until the BMP Design Manual is approved by the San Diego Water Board, as opposed to when the BMP Design Manual has been updated. The commenters have made this request so that there is no timing gap in coverage for the exemptions.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that any changes are needed to the language in Provision E.3.c.(2)e. The Tentative Order requires the Copermittees to update their BMP Design Manuals in accordance with Provision F.2.b. The Copermittees are required to update their BMP Design Manual, but there is no requirement to seek San Diego Water Board approval before the BMP Design Manual goes into effect 180 days after completing the update. If there is a discrepancy in approving the Water Quality Improvement Plan with recommended exemptions before the BMP Design Manual goes into effect, then the San Diego Water Board could direct the Copermittees to delay implementation of the BMP Design Manual.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3c3-1 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Implementation		
	<p>COMMENT: <i>Requests for the Water Quality Equivalency calculations be included as an optional Copermittee deliverable.</i></p> <p>The County of San Diego requests that the Water Quality Equivalency calculations and methodologies currently under development by the Copermittees in support of the Alternative Compliance Program be included in the Tentative Order as an optional deliverable for review and acceptance by the San Diego Water Board's Executive Officer.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board agrees with this comment and has modified the Tentative Order at Provision E.3.c.(3) to incorporate the recommendation.</p>	

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E3c3-2 PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Implementation		
	<p>COMMENT: <i>Copermittees should be allowed flexibility to develop a trading and water quality credit system.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District requests that language pertaining to the water quality credit system be revised to remove the no-net impact limitations because certain projects may offer significant environmental benefits that are not necessarily related to water quality, and that any water quality trading system should be implemented in accordance with EPA's 2003 Final Water Quality Trading Policy.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the commenters that the no-net impact language should be removed from the Tentative Order. The optional credit system described in Provision E.3.c.(3)(d) is based on meeting the structural BMP performance standards as they pertain to protecting and improving water quality. A credit system that would allow other environmental benefits cannot necessarily ensure that water quality would be protected to the MEP standard, for which the performance standards are structured to achieve.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3e-1	PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight	
	<p><u>COMMENT:</u> <i>Include the date the BMP manual will be implemented to provide clarity.</i></p> <p>The City of San Diego requests that the date that the BMP Manual will go into effect for the San Diego County Copermittees (December 24, 2015) be explicitly expressed in the Tentative Order.</p>	City of San Diego
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that including the date when the BMP Manual will go into effect is appropriate, because this date will be different for the various Copermittees covered under the Tentative Order (i.e. San Diego County Copermittees, South Orange County Copermittees, and eventually Riverside County Copermittees).</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E3e-2 PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight		
	<p>COMMENT: <i>Revise the Tentative Order to define when a priority development project has prior lawful approval.</i></p> <p>The City of San Diego requests a definition of prior lawful approval be added to the Tentative Order to clarify when it is appropriate to allow Priority Development Projects to comply with BMP standards of previous MS4 permits. The City of San Diego recommends including a definition that can 1) provide a clear, bright line; 2) provide a backstop to ensure that older projects with approvals comply with new requirements unless those approvals confer vested rights; 3) protect vested rights; and 4) preserve Copermittee's land use authority. Similarly, the Coalition provided comments requesting that the Tentative Order be modified to include a definition of prior lawful approval, stating that clarifying the intent of the San Diego Water Board will assist all interested parties in understanding the factors that the Copermittees need to balance in applying their discretion with Provision E.3.e.(1)(a) of the Tentative Order.</p> <p>In contrast, the Coastal Environmental Rights Foundation and San Diego Coastkeeper submitted comments that it is not necessary to take any action to define prior lawful approval, stating that doing so could allow for vested rights that run counter to widely accepted law.</p>	<p>Construction Industry Coalition on Water Quality</p> <ul style="list-style-type: none"> • San Diego Building Industry Association • Building Industry Association of Southern CA • Associated General Contractors • Associated Builders and Contractors • San Diego Regional Chamber of Commerce • Business Leadership Alliance • San Diego Association of Realtors • San Diego Apartment Association • National Association of Industrial & Office Properties • Building Office & Management Association • San Diego Chapter of American Society of Landscape Architects <p>San Diego Coastkeeper Coastal Environmental Rights Foundation</p> <p>City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board has carefully considered the comments received regarding prior lawful approval, and whether or not it is appropriate to define this term in the Tentative Order.</p> <p>The San Diego Water Board understands the concerns regarding the difficulty the Copermittees face in applying their discretion to the concept of prior lawful approval in a consistent manner that complies with the intent of Provision E.3.e.(1)(a). Therefore, for the reasons presented by the commenters, the San Diego Water Board agrees that clarification regarding the intent of the Provision and the San Diego Water Board's expectation in how the Copermittees use their discretion, would be helpful to all parties.</p> <p>The Tentative Order has been modified to include a definition for prior lawful approval for both private and public Priority Development Projects that is intended to provide guidance and clarification to Copermittees in</p>	

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E3e-2	PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight
	<p>exercising their discretion in this matter. For private development projects, prior lawful approval is a development approval or construction permit that complies with the Priority Development Project requirements of the Fourth Term MS4 permits (Order Nos. R9-2007-0001 for San Diego County, R9-2009-0002 for south Orange County, or R9-2010-0016 for Riverside County) and includes the design of the storm water drainage system for the project in its entirety as accepted by the Copermittee. Alternatively, prior lawful approval is a development approval or construction permit that confers a vested right to Priority Development Projects to proceed under storm water structural BMP requirements of prior MS4 permits. If a Copermittee grants prior lawful approval to a Priority Development Project based on one of the two aforementioned conditions, then the Copermittee must ensure that 1) any subsequent project approvals must be issued within 5 years of the effective date of the BMP Design Manual, and 2) BMP installation under subsequent approvals must remain in substantial conformity with the design of the storm water drainage system included in the initial approval.</p> <p>For public projects, prior approval allowing implementation of Fourth Term MS4 Permit structural BMP requirements in lieu of the requirements of the Tentative Order is acceptable if the storm water drainage system for the project, in its entirety, has been stamped by the City or County Engineer by the time the BMP Design Manual goes into effect.</p> <p>The San Diego Water Board recognizes that the Copermittees will need to determine whether or not a project has prior lawful approval under the Order based on the circumstances of each project. Nevertheless, the San Diego Water Board expects each Copermittee to require the implementation of Provision E.3 of the Tentative Order wherever it can lawfully do so. Some projects will have received prior lawful approval by the effective date of the BMP Design Manual and hence the requirements of the Fourth Term MS4 permits will govern. The San Diego Water Board expects that very few Priority Development Projects, if any, will be allowed to implement BMP requirements from prior MS4 permits. In cases where BMP requirements from the Fourth Term (or earlier) MS4 permits govern the structural BMP design requirements of a Priority Development Project, the San Diego Water Board expects the Copermittees to be able to demonstrate, in a programmatic audit or other means, that the project has prior lawful approval within the meaning of Provision E.3 of this Order. The San Diego Water Board has conducted and will continue to conduct programmatic audits of the Copermittee's land development programs to evaluate MS4 permit compliance. In all cases the San Diego Water Board expects the Copermittees to only approve projects with adequate post construction BMPs that are protective of water quality.</p> <p>In summary, Attachment 1 of the Tentative Order has been modified at Provision E.3.e.(1) to include a definition of the term "prior lawful approval." This language is intended to provide clarity on how the term</p>

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E3e-2	PROVISION E.3.e: Priority Development Project BMP Implementation and Oversight
	should be interpreted in determining structural BMP requirements for Priority Development Projects, and will also assist the San Diego Water Board in assessing Copermittee compliance with implementing the structural BMP requirements for Priority Development Projects to the maximum extent practicable (MEP) standard.

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E4-1 PROVISION E.4: Construction Management		
	<p>COMMENT: <i>Modify Construction Management Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requests the introductory paragraph of the Construction Management Provisions be modified to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Construction Management Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.4. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E5-1 PROVISION E.5: Existing Development Management		
	<p>COMMENT: <i>Modify Existing Development Program provisions so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Existing Development Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Existing Development Management Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.5. They are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E5-2	PROVISION E.5: Existing Development Management	
	<p><u>COMMENT:</u> <i>Delete the requirement to evaluate retrofit of stream channels.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District requested removal of the requirement to evaluate retrofit of stream channels from the Tentative Order because it is not the Copermittee's responsibility to restore receiving waters.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p><u>RESPONSE:</u> The San Diego Water Board agrees that it is not the responsibility of the Copermittees to restore receiving waters. None of the provisions in the Tentative Order requires the Copermittees to perform stream restorations.</p> <p>The Tentative Order at Provision E.5.e.(2) requires the Copermittees to describe a program to rehabilitate streams, channels, and habitats in existing developed areas by first identifying viable candidates, then developing a strategy to facilitate the implementation of the rehabilitations. Rehabilitation of streams, channels, and habitats may also serve as candidates for alternative compliance (to implementation of structural BMPs; see Tentative Order at Provision E.3.c.(3)), and is an important element of the Tentative Order in achieving improvements in water quality and watershed functions.</p> <p>Based on this consideration no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E6-1 PROVISION E.6: Enforcement Response Plans		
	<p>COMMENT: <i>Copermittees should be allowed to utilize existing guidelines and procedures for enforcement.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request Provision E.6 be modified to specify that a Copermittee may utilize and implement established, equivalent guidelines and procedures for enforcement.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that any changes to the Tentative Order are needed. A Copermittee will be able to continue using and implementing existing enforcement guidelines and procedures if the Copermittee demonstrates the procedures and guidelines comply with the requirements of Provision E.6. Provision E.6 requires each Copermittee to document enforcement processes and procedures in an Enforcement Response Plan, as part of its jurisdictional runoff management program document and specifically describes what must be included in the Plan. The Enforcement Response Plan will promote transparency and accountability by ensuring that Copermittee enforcement programs and procedures are clear and accessible to the San Diego Water Board and the public, and can be used to evaluate the adequacy of Copermittee enforcement programs and progress towards meeting enforcement goals. Because the Copermittees already have procedures in place for enforcement, there will likely only be minor modifications needed to the programs to meet the requirements of Provision E.6.</p> <p>The Enforcement Response Plan is expected to be a tool the Copermittee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Tentative Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermittee within its jurisdiction.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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E6-2	PROVISION E.6: Enforcement Response Plans	
	<p>COMMENT: <i>The definition for "Escalated Enforcement" should be redefined.</i></p> <p>The County of Orange and Concurring Cities, and the Orange County Flood Control District request Provision E.6.d be modified to be "Progressive Enforcement" instead of "Escalated Enforcement" because the process should reflect a standard progressive approach.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees with the recommendation to modify the language in Provision E.6.d from "escalated enforcement" to "progressive enforcement".</p> <p>The Copermittees are expected to implement "progressive enforcement" in all cases of enforcement. For enforcement issues that are associated with the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area, the Copermittees are expected to implement enforcement swiftly. "Escalated enforcement" refers to the Copermittee escalating its enforcement measures and resources to a) ensure compliance with local statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Tentative Order, b) compel prompt correction of violations and the conditions that led to the violations, and c) deter future violations. The term "escalated enforcement" correctly reflects this added level of urgency and focus to compel compliance.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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E7-1	PROVISION E.7: Public Education and Participation	
	<p>COMMENT: <i>The Public Education Program provisions must be modified so as not to negate the very intent and purpose of the watershed approach and the focus on the highest priorities within each watershed management area.</i></p> <p>The County of Orange and Concurring Cities and the Orange County Flood Control District request modification to the introductory paragraph of the Public Education Program Provisions to better reflect the watershed approach and program focus on highest priority conditions of concern.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that modifications to the Public Education Program Provisions are needed for the reasons stated in the Response to Comment E1-1.</p> <p>Copermittees are afforded flexibility in meeting the requirements of Provision E.7. The Copermittees are required to meet a minimum baseline program (with limited prescriptiveness compared to Fourth Term MS4 permits) as stated in the Tentative Order, and within that framework focus on the highest priority conditions of concern as described in the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted</p>	

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January 21, 2015

F-1 PROVISION F: REPORTING		
	<p>COMMENT: <i>Modify Tentative Order to better align reporting requirements with the process for development and updates of the various plans to allow for the time necessary to complete the work and to submit the ROWD.</i></p> <p>The County of Orange and Concurring Cities and Orange County Flood Control District suggest the due dates for development of each component of the Water Quality Improvement Plan be linked to the development step that precedes it and not to the commencement of coverage under the Order. The commenters also suggest the timeframe for development of the Water Quality Improvement Plan incorporate adequate time for the Copermittees to review and respond to comments received on the current action before moving on to the next step of development. The Copermittees are also concerned that the schedule proposed in the Tentative Order would impart an overly burdensome schedule on members of the public participating in the Consultation Panels and reviewing documents during the public review periods and do not allow for adequate time to conduct CEQA.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The Tentative Order accommodates the commenters concerns with the amount of time needed to develop the Water Quality Improvement Plan and submit the deliverables by providing a flexible range within which the Copermittees may submit each component of the Water Quality Improvement Plan. Copermittees may submit the requirements of Provision B.2 (i.e. priority water quality conditions, source of conditions, and potential water quality improvement strategies) as early as 6 months and no later than 12 months after commencement of coverage and Provision B.3 (i.e. goals, strategies, and schedules) as early as 9 months, and no later than 18 months after commencement of coverage. By including this range within which the deliverable can be submitted, the San Diego Water Board is allowing adequate time and adequate flexibility for the Copermittees to a) create the deliverable, b) accept and review comments received on the deliverable during development of the Water Quality Improvement Plan, and c) complete any CEQA compliance as the Copermittee determines to be necessary. The San Diego Water Board expects each partial deliverable to be well thought out and complete but also realizes that additional time exists in the process to further incorporate comments and input received during the public comment period and San Diego Water Board staff review. As such the Tentative Order requires the final version of the Water Quality Improvement Plan to be submitted within 24 months after commencement of coverage under the Tentative Order as it amends Order No. R9-2013-0001.</p> <p>By requiring submittal of individual components of the Water Quality Improvement Plan, members of the Consultation Panel, the public, and the San Diego Water Board will be able to provide input early on in the Plan</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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F-1	PROVISION F: REPORTING
	<p>development. The San Diego Water Board expects that any deficiencies in the Water Quality Improvement Plan will be identified early on either during the public review and comment period or during the review by the San Diego Water Board. The Orange County Copermittees may wish to consult with San Diego County Copermittees to benefit from their experience in developing the Water Quality Improvement Plans.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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H-1 PROVISION H: MODIFICATION OF PROGRAMS		
	<p>COMMENT: <i>Modify Tentative Order to include an explicit re-opener provision.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional revisions to the explicit re-opener provisions in the Tentative Order are necessary.</p> <p>Provision H.4.c of the Tentative Order already explicitly states that the San Diego Water Board will re-open the Order if any of the TMDLs in Attachment E are amended in the Basin Plan by the San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttA-1	ATTACHMENT A: Discharge Prohibitions and Special Protections	
	<u>COMMENT:</u> <i>The City supports the proposed changes to the Areas of Special Biological Significance.</i>	City of San Diego
	<u>RESPONSE:</u> The San Diego Water Board acknowledges the City's support of this change.	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions		
	<p><u>COMMENT:</u> <i>Request for additional or modified definitions.</i></p> <p>Several comments were submitted requesting modifications to existing definitions and/or the addition of new definitions to Attachment C to the Tentative Order.</p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p><u>RESPONSE:</u> The San Diego Water Board reviewed and considered the requested modifications to existing definitions and additional definitions.</p> <p>All of the requested additions or modifications were submitted during the 2013 adoption process for Order No. R9-2013-0001. The San Diego Water Board reconsidered the requested additions or modifications and determined, in all cases, that the requested modifications or additions were still not appropriate, not necessary, or both.</p> <p>Therefore, no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads		
	<p>COMMENT: <i>Compliance determination for final WQBELs should be based on implementation of BMPs and not numeric effluent limitations.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has already included a compliance determination option for final WQBELs based on implementation of BMPs in the Tentative Order.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>For the interim TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance by implementing a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, with a "reasonable assurance" that the implementation of the BMPs will achieve the interim TMDL WQBELs within the interim compliance dates. The Copermittees will be provided considerable flexibility for demonstrating compliance with achieving the interim WQBELs.</p> <p>For the final TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance with the final WQBELs by implementing a Water Quality Improvement Plan that includes an</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttE-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads
	<p>analysis to demonstrate that the implementation of the BMPs required by the TMDL achieves compliance with one or more of the final numeric WQBELs. The Water Quality Improvement Plan must include monitoring and assessments to confirm that the Water Quality Improvement Plan is achieving the final TMDL requirement. The San Diego Water Board must accept and continue to accept the Water Quality Improvement Plan and analysis, and the Copermittees must continue to implement the BMPs and demonstrate through the analysis that the final numeric WQBELs are being achieved.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE-2 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	<p>COMMENT: <i>Modify Tentative Order to include a compliance mechanism prior to approval of the Water Quality Improvement Plans.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that it is necessary to include a compliance mechanism prior to approval of the Water Quality Improvement Plan.</p> <p>If a TMDL in Attachment E includes interim or final compliance dates that have passed, the Copermittees are expected to have data to demonstrate that one or more of the compliance determination options have already been met. If interim or final TMDL compliance dates have not passed, compliance with the interim or final TMDL compliance requirements do not have to be demonstrated yet, thus a compliance determination mechanism is not yet required.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE5-1 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL		
	<p>COMMENT: <i>Correct discrepancies between adopted TMDLs in the Basin Plan and provisions in the Tentative Order.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that there are discrepancies between the TMDLs in the Basin Plan and the provisions in the Tentative Order.</p> <p>The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermittees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the TMDLs in the Basin Plan are essentially "instructions" for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the "instructions" provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttE5-2 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL	
	<p>COMMENT: <i>WQBELs for Baby Beach TMDL inappropriately include TMDL numeric targets.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available WLAs developed under TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to</p>

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AttE5-2 ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDL	
	<p>achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

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AttE6-1 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL		
	<p><u>COMMENT:</u> <i>Correct discrepancies between adopted TMDL Basin Plan and provision in Tentative Order.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that there are discrepancies between the TMDLs in the Basin Plan and the provisions in the Tentative Order.</p> <p>The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermittees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored.</p> <p>The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the TMDLs in the Basin Plan are essentially "instructions" for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the "instructions" provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

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AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL	
	<p>COMMENT: <i>Modify Attachment E.5, WQBELs for Beaches and Creeks TMDL inappropriately include TMDL numeric targets.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs.</p> <p>The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available WLAs developed under TMDLs.</p> <p>WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). This is consistent with 40 CFR 122.44(d)(1)(vii)(B) and 122.44(k)(2)-(4).</p> <p>The San Diego Water Board has incorporated options (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters.</p> <p>The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to</p>

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AttE6-2 ATTACHMENT E 6: Beaches and Creeks Bacteria TMDL	
	<p>achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttE7-1 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p><u>COMMENT:</u> <i>Modify the Tentative Order to allow individual jurisdictional compliance with TMDLs.</i></p> <p>The City of San Diego requests the Tentative Order be modified so that Final TMDL Compliance Determination using the Water Quality Improvement Plan pathway is based on individual jurisdictional compliance instead of all Copermittees collectively.</p>	City of San Diego
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that modifications are needed to the language pertaining to TMDL compliance determination. The commenter correctly asserts that the intent of the language, and in fact, the intent of the Water Quality Improvement Plan concept, is that the Copermittees develop the Water Quality Improvement Plans collectively and evaluate water quality improvement strategies on a watershed basis. The San Diego Water Board recognizes that the Copermittees have no authority over other Copermittees to compel TMDL compliance; therefore, the Tentative Order has multiple compliance pathways available to each Copermittee to achieve compliance. These pathways are presented in each of the 7 Specific (TMDL) Provisions at X.b.(3). These alternative compliance pathways do not rely on actions or inactions of other Copermittees.</p>	

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AttE7-2 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Clarify that waste load allocations include discharges from other responsible parties in addition to Responsible Copermitees.</i></p> <p>The City of San Diego, City of Del Mar, and Industrial Environmental Association submitted comments requesting the final effluent limitations expressed in Table 7.1, which were derived from waste load allocations, recognize the contribution of sediment loading to the Los Penasquitos Watershed from dischargers other than the Copermitees. Without this recognition, the other dischargers would have a zero sediment loading allocation, contrary to the intent of the TMDL.</p>	<p>Industrial Environmental Association City of San Diego City of Del Mar</p>
	<p>RESPONSE: Although the Tentative Order is an NPDES permit specifically issued to the Phase I MS4 Copermitees, the San Diego Water Board has nonetheless modified Table 7.1 to state that the effluent limitation of 2,580 tons/year is shared amongst all dischargers identified in Resolution No. R9-2012-0033. Provision 7.b.(2)(c)(ii) has likewise been modified to clarify that the Responsible Copermitees must implement BMPs to achieve only their portion of the effluent limitations, as opposed to other discharger's contributions.</p> <p>The City of San Diego suggested dividing up the collective load in proportion to land area occupied by each discharger, but the San Diego Water Board cannot impose a TMDL distribution methodology through the permitting process that has not been peer reviewed and vetted through the TMDL development stakeholder process. Assigning a waste load allocation and subsequent effluent limitation applicable to all dischargers within a watershed collectively, is consistent with the San Diego Water Board's approach to TMDL expression for other waterbodies and constituents.</p>	

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AttE7-3 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise the Final TMDL compliance determination to be consistent with the Basin Plan Amendment and other TMDLs.</i></p> <p>The City of Del Mar and the City of San Diego submitted comments requesting the language pertaining to final TMDL compliance determination be modified to be consistent with the Basin Plan Amendment adopted by the San Diego Water Board under Resolution No. R9-2012-0033, and offer multiple compliance pathways similar to other TMDLs.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees to modify the language of Provision 7.b.(3)(a) to match the language of the Basin Plan Amendment (page A-16). However, the San Diego Water Board disagrees that the suggested revisions to add additional language to incorporate a compliance pathway related to “implementation actions” is necessary. Specifically, both the City of San Diego and City of Del Mar requested the following language to be added:</p> <p>“Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement”</p> <p>This language is not needed because Provision 7.b.(3)(b) regarding the development of the Water Quality Improvement Plan as a compliance pathway serves the same purpose as the suggested language. The phrase “implementation actions” has been added to Provision 7.b.(3)(b)(ii) to incorporate all ideas from the Basin Plan Amendment language into the Water Quality Improvement Plan concept.</p> <p>The San Diego Water Board considered the request to add two additional compliance pathways similar to those included in other TMDLs. As this sediment TMDL is different than other adopted TMDLs because the primary focus is lagoon saltmarsh restoration, as opposed to the quality of the MS4 discharges, the San Diego Water Board did not incorporate the suggested modifications. The intent of the TMDL efforts was to facilitate successful restoration of 346 acres of saltmarsh vegetation, and the Tentative Order appropriately uses this metric as the primary compliance pathway.</p> <p>The schedule to achieve compliance is 20 years, as established by the TMDL. In contrast, the NPDES permit as represented by the Tentative Order is on a 5-year cycle. Revisions to the compliance pathways available to the Responsible Parties can be revisited upon reissuance of the NPDES permit at a later date. The San Diego Water Board believes it is more appropriate to offer multiple compliance pathways after data have been collected showing the effects of sediment reduction efforts on lagoon restoration. If a positive linkage can be</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttE7-3 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL	
	established between the reduction in sediment discharges and the successful restoration of the lagoon, then the Responsible Parties can make this request at subsequent permit reissuance proceedings.

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 20, 2015

AttE7-4 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Correct references in the Los Penasquitos final TMDL compliance determination.</i></p> <p>The City of San Diego requested modifications to Specific Provision 7.b(3)(b) to correct errors.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board has reviewed the recommendation to change the text to reference 7.b.(2)(a) and has not made changes because the references to Specific Provision 7.b.(3)(a) are correct. The incorrect reference to Specific Provision 2 has been changed to Specific Provision 7</p>	

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January 21, 2015

AttE7-5 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise the interim TMDL compliance determination to be consistent with the Basin Plan Amendment and other TMDLs.</i></p> <p>The City of Del Mar and the City of San Diego submitted comments requesting that the language pertaining to interim TMDL compliance determination be modified to be consistent with the Basin Plan Amendment adopted by the San Diego Water Board under Resolution No. R9-2012-0033, and offer multiple compliance pathways similar to other TMDLs.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees with the recommendation and has added multiple compliance options for interim TMDL compliance at Specific Provision 7.c.(2), as suggested by the commenters.</p> <p>Interim TMDL compliance, on or after the interim compliance dates shown in Table 7.2, may be demonstrated via one of the following methods:</p> <ul style="list-style-type: none"> (a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR (b) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met; OR (c) There are no exceedances of the Copermittee's portion of interim effluent limitations under Table 7.2 at the Responsible Copermittee's MS4 outfalls; OR (d) The Responsible Copermittees have submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the Copermittee's portion of the interim TMDL compliance requirements will be achieved by the interim compliance date. 	

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AttE7-6 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise Tables 7.1 and 7.2 in Specific Provision 7 to Reflect the Basin Plan Amendment.</i></p> <p>The City of San Diego and the City of Del Mar submitted comments requesting modifications to Tables 7.1 and 7.2 to 1) change the heading from interim effluent limitations in tons/year to tons/wet season, and 2) add a footnote acknowledging that the effluent limitation is shared by all Responsible Parties identified in Resolution R9-2012-0033.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board reviewed the wasteload allocations in the Basin Plan Amendment and notes that they are reported in tons/year on both page A-6 and the Table on page A-17. Nevertheless, Table 7.2 has been modified to report the effluent limitations in tons per wet season, as the commenters requested. A footnote was also added to acknowledge the other Responsible Parties identified in Resolution R9-2012-0033.</p> <p>The San Diego Water Board agrees that the third column of Table 7.2 is misleading and not useful, therefore it was deleted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttE7-1 ATTACHMENT E 7: Los Peñasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Revise monitoring start date to be the first full wet season after the Water Quality Improvement Plan is accepted.</i></p> <p>The City of San Diego and the City of Del Mar submitted comments requesting that the Assessment and Reporting Requirements in Specific Provision 7.d.(3) be revised so that the first data collection occurs after the San Diego Water Board acceptance of the Water Quality Improvement Plan.</p>	<p>City of Del Mar City of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the start date for the monitoring requirements should be delayed, but disagrees that acceptance of the Water Quality Improvement Plan is needed first. The language has been changed so that the start date occurs in the 2015-2016 wet season.</p> <p>The monitoring requirements were developed as part of the TMDL Basin Plan Amendment that was adopted by the San Diego Water Board in 2012. The TMDL became effective, and the compliance timeline started, when it was approved by the Office of Administrative Law in July, 2014. The Responsible Parties need not wait for acceptance of the Water Quality Improvement Plan to begin implementing their required monitoring program under the TMDL.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-1 ATTACHMENT F: Fact Sheet / Technical Report	
	<p>COMMENT: <i>Based on the successes of the Orange County Storm Water Program, there is little justification for much of the Tentative Order.</i></p> <ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: Attachment F to the Tentative Order includes the Fact Sheet. The Fact Sheet sets forth a brief summary of the basis for the draft permit conditions, the principal facts and the significant factual, legal, methodological, and policy questions the San Diego Water Board considered in preparing the Tentative Order. The Fact Sheet. In accordance with the Code of Federal Regulations (CFR) Title 40 Parts 124.8 and 124.56 (40 CFR 124.8 and 40 CFR 124.56), this Fact Sheet includes, but is not limited to, the following information:</p> <ol style="list-style-type: none"> 1. Contact information 2. Public process and notification procedures 3. Background of municipal storm water permits 4. Regional MS4 Permit approach 5. Economic considerations 6. Applicable statutes, regulations, plans and policies 7. Discussion of the provisions in the Order <p>The Fact Sheet also references the Permit Reissuance Process specific to Orange County Copermittees, and references the San Diego Water Board receipt and consideration of the Report of Waste Discharge during development of the Tentative Order. Based on San Diego Water Board review of the Report of Waste Discharge and consideration of the State of Environment discussion, very few changes to Order No. R9-2013-0001 (Regional MS4 Permit) were necessary in the Tentative Order to accommodate the recommendations made in the Report of Waste Discharge. The Fact Sheet was modified to include a brief summary of the basis for any change made in the Tentative Order either related to the State of the Environment discussion in the Report of Waste Discharge or the comments included herein. The Tentative Order requirements reflect the progress made by the Orange County Copermittees' programs and provides them with considerably more flexibility to further improve water quality.</p> <p>See also comment E3c-1 and Gnl-2.</p>

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AttF-1	ATTACHMENT F: Fact Sheet / Technical Report
	Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

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AttF-2 ATTACHMENT F: Fact Sheet / Technical Report		
	<p>COMMENT: <i>Modify Fact Sheet to include language explaining the iterative approach and TMDLs.</i></p>	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional language is necessary to explain the iterative approach and TMDLs.</p> <p>The iterative approach is for NPDES storm water discharges that are not subject to requirements set forth in TMDLs and are causing or contributing to exceedances of water quality standards in receiving waters. Attachment E to the Tentative Order includes requirements that must be met to be in compliance with the TMDLs. For most of the TMDLs in Attachment E, the requirements also include provisions that provide additional flexibility for determining and achieving compliance with the interim TMDL requirements. The Fact Sheet accurately describes the difference between the iterative approach of the MS4 Permit and compliance with TMDL requirements.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>	

RESPONSE TO COMMENTS ON TENTATIVE ORDER NO. R9-2015-0001

January 21, 2015

AttF-3 ATTACHMENT F: Fact Sheet / Technical Report	
	<p>COMMENT: <i>Modify Fact Sheet to include language explaining the incorporation of new TMDLs into the Water Quality Improvement Plans.</i></p>
	<ul style="list-style-type: none"> • County of Orange Concurring Cities: Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest, and Mission Viejo • Orange County Flood Control District
	<p>RESPONSE: The San Diego Water Board disagrees that additional language is necessary to explain the incorporation of new TMDLs into the Water Quality Improvement Plans.</p> <p>Going forward, the San Diego Water Board is assuming that the Copermittees will be involved as a stakeholder in the development of any new TMDLs that may include the MS4 as a source of pollutants contributing to impairment. As a stakeholder, the Copermittees are expected to work with the San Diego Water Board TMDL development staff to identify appropriate WLAs and implementation measures to address MS4 discharges.</p> <p>Because of this knowledge, the Copermittees will have the background and information that will be useful during the re-opening of the MS4 Permit to include the new TMDL requirements. Provision F.2.c.(2) requires the Copermittees to "initiate" an update to the Water Quality Improvement Plans after Office of Administrative Law (OAL) and USEPA approval. The Copermittees may "initiate" the update by working with San Diego Water Board MS4 permitting staff to re-open the Regional MS4 Permit and concurrently begin the process of incorporating any new water quality improvement strategies that may be necessary to include into the Water Quality Improvement Plan. In addition, the expectation is that the Water Quality Improvement Plans will reduce the need for new TMDLs in the future.</p> <p>Based on these considerations no changes to the Tentative Order as it amends Order No. R9-2013-0001 are needed or warranted.</p>

ATTACHMENT

15

**California Regional Water Quality Control Board
San Diego Region**

Response to Comments Report

Tentative Order No. R9-2015-0100

*An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266,
As Amended by Order No. R9-2015-0001
National Pollutant Discharge Elimination System (NPDES) Permit
and Waste Discharge Requirements for Discharges from the
Municipal Separate Storm Sewer Systems (MS4s) Draining the
Watersheds within the San Diego Region*

November 4, 2015

Revised November 10, 2015

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

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**California Regional Water Quality Control Board
San Diego Region**

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Responses to Comments on Tentative Order No. R9-2015-0100

November 4, 2015

Revised November 10, 2015

Introduction

This report contains responses to written comments timely received on Tentative Order No. R9-2015-0100, *An Order Amending Order No. R9-2013-0001, NPDES No. CAS010266, as Amended by Order No. R9-2015-0001, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* (Tentative Order). The Tentative Order and its attachments were available for public review and comment for 46 days, with the comment period ending on September 14, 2015. Specifically, the San Diego Water Board requested comments on the following three documents:

- Tentative Order No. R9-2015-0100;
- Attachment No. 1 – Revised Order No. R9-2013-0001; and
- Attachment No. 2 – Revised Fact Sheet to Order No. R9-2013-0001.

The phrases “Tentative Order” and “Regional MS4 Permit” in the following response to comments table refers to both Tentative Order No. R9-2015-0100 and the two attachments. Comments and responses are organized by the section of either Attachment 1 or Attachment 2 that is being referenced. Wherever possible, comments are grouped based on content and summarized by the San Diego Water Board. The actual comment letters can be accessed on the San Diego Water Board website at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/index.shtml

List of Commenters:

Comments were submitted by the following organizations, public agencies, or individuals (listed alphabetically):

1. City of Dana Point
2. City of Escondido
3. City of Laguna Beach
4. City of Lake Forest
5. City of Menifee
6. City of San Clemente
7. City of San Diego
8. City of San Juan Capistrano
9. City of Santee
10. Construction Industry Coalition on Water Quality (CICWQ)
11. County of San Diego
12. Environmental Groups (San Diego Coastkeeper, Coastal Environmental Rights Foundation, and Surfrider Foundation San Diego Chapter)
13. Orange County Copermittees
14. Riverside County Copermittees
15. San Diego Coastkeeper and Coastal Environmental Rights Foundation
16. San Diego County Copermittees
17. San Diego Unified Port District
18. South Laguna Civic Association
19. [Safari Highlands Ranch](#)

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RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-1 GENERAL COMMENTS	
<p>COMMENT: <i>Request to incorporate previous written comments and testimony in the record for this Tentative Order.</i></p> <p>The Copermitees and other stakeholders requested that previous written comments and testimony be incorporated into the record for this Tentative Order. The comment letters also included copies of the written comments previously submitted during the proceedings to adopt Order No. R9-2013-0001, and the proceedings to adopt Order No. R9-2015-0001 to amend Order No. R9-2013-0001.</p>	<p>Riverside County Copermitees Orange County Copermitees City of Dana Point City of San Diego San Diego Unified Port District South Laguna Civic Association Construction Industry Coalition on Water Quality</p>
<p>RESPONSE: The San Diego Water Board is incorporating the previous written comments and testimony provided during the proceedings to adopt Order No. R9-2013-0001, and the proceedings to adopt Order No. R9-2015-0001 to amend Order No. R9-2013-0001 into the record for this Tentative Order.</p> <p>The San Diego Water Board reviewed Tentative Order No. R9-2015-0100 and its Attachments and has determined that the March 27, 2013 responses to comments document prepared during the 2013 adoption process of Order No. R9-2013-0001, the January 21, 2015 responses to comments document prepared during the adoption process of Order No. R9-2015-0001, and the oral responses to comments during the workshops and hearings during those proceedings address the previously submitted comments and testimony. The San Diego Water Board is incorporating by this reference as if set forth in full herein its written responses to comments and oral responses to comments raised during the workshops and hearings on Order Nos. R9-2013-0001 and R9-2015-0001 into these responses.</p> <p>To the extent commenters incorporate issues and objections raised in petitions for review of Order No. R9-2013-0001 filed with the State Water Board in SWRCB/OCC File A-2254(a)-(p), or in petitions for review of Order No. R9-2015-0001, amending Order No. R9-2013-0001 (SWRCB/OCC File A-2367(a)-(i)), the San Diego Water Board notes that it has not yet had an opportunity to submit written responses to those petitions for review and is not specifically addressing those petitions for review in these responses to comments. The San Diego Water Board will submit written responses to the petitions for review at the appropriate time in the State Water Board's petition proceeding.</p> <p>No changes to the Tentative Order or its Attachments were made based on the renewed comments.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-2	GENERAL COMMENTS	
	<p>COMMENT: <i>Request for clarification of implementation requirements for the Riverside County Copermittees as a result of late entry into the Regional MS4 Permit.</i></p> <p>The Riverside County Copermittees noted that several provisions of the Regional MS4 Permit, including requirements to submit certification of legal authority, assessment and subsequent Water Quality Improvement Plan revision requirements, and requirements to submit a regional monitoring and assessment report, which either require data gathered under a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, or are due for submittal outside of the Regional MS4 Permit's term. The Riverside County Copermittees wanted clarification that: 1) the certification of legal authority which was submitted by the Riverside County Copermittees under Order No. R9-2010-0016 will remain effective until a new certification is submitted with the first Water Quality Improvement Plan Annual Report (after the current Regional MS4 Permit term has ended), 2) any provisions regarding assessments or requiring data gathered under an accepted Water Quality Improvement Plan will not be due until such time that the necessary data are gathered and the assessments made under time periods described in the Regional MS4 Permit, and 3) the regional monitoring and assessment report for the current Regional MS4 Permit term should be completed utilizing data gathered during the transitional monitoring period, as these will be the only data that will be available at that time.</p>	Riverside County Copermittees
	<p>RESPONSE: The San Diego Water Board agrees that: 1) the certification of legal authority which was submitted by the Riverside County Copermittees under Order No. R9-2010-0016 will remain effective until a new certification is submitted with the first Water Quality Improvement Plan Annual Report (after the current Regional MS4 Permit term has ended), 2) any provisions regarding assessments or requiring data gathered under an accepted Water Quality Improvement Plan will not be due until such time that the necessary data are gathered and the assessments made under time periods described in the Regional MS4 Permit, and 3) the regional monitoring and assessment report for the current Regional MS4 Permit term should be completed utilizing data gathered during the transitional monitoring period, as these will be the only data that will be available at that time.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-3 GENERAL COMMENTS	
	<p>COMMENT: <i>Request to remove the City of Menifee from Water Quality Improvement Plan development and implementation.</i></p> <p>The Riverside County Copermittees and the City of Menifee requested several modifications to the Regional MS4 Permit that would remove the City of Menifee from the requirement to develop and implement the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area. The Riverside County Copermittees and the City of Menifee assert that the City of Menifee does not own or operate any MS4 within the Santa Margarita River Watershed Management Area, and provided a map showing the City’s jurisdictional boundary and MS4.</p>
	<p>Riverside County Copermittees City of Menifee</p>
	<p>RESPONSE: The San Diego Water Board reviewed the information provided by the commenters and disagrees that the City of Menifee does not own or operate any MS4 within the Santa Margarita Watershed Management Area.</p> <p>The maps provided by the commenters show a portion of MS4 along Scott Road within the Santa Margarita Watershed Management Area that is indicated to be owned by the City of Menifee. In addition, the maps provided by the commenters show that there is a residential area within the City of Menifee and within the Santa Margarita River Watershed Management Area with streets, curb, and gutter that drain to MS4 owned by the Riverside County Flood Control and Water Conservation District, which discharges to a tributary of Warm Springs Creek. Warm Springs Creek is an impaired water body in the Santa Margarita River Watershed Management Area and may become subject to the requirements of a TMDL in the future. The streets, curb, and gutter in the residential area are also considered part of the City of Menifee’s MS4. The maps provided confirm that it is appropriate for the City of Menifee to be required to participate in the development and implementation of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-4	GENERAL COMMENTS	
	<p><u>COMMENT:</u> <i>Stakeholder workshops have been effective.</i></p> <p>The Orange County Copermittees expressed appreciation for the efforts of the San Diego Water Board staff to collaboratively engage the Copermittees and other stakeholders through the use of mediated workshops. The workshop format allowed all viewpoints to be expressed with sufficient time provided for discussion of issues regarding the Regional MS4 Permit.</p>	<p>Orange County Copermittees City of Dana Point City of Laguna Beach</p>
	<p><u>RESPONSE:</u> The San Diego Water Board agrees that the collaborative approach utilized during the Regional MS4 Permit development and amendment processes has been beneficial for the San Diego Water Board staff to better understand the issues of concern to the stakeholders.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-5 GENERAL COMMENTS	
<p>COMMENT: <i>Requests for the Regional MS4 Permit to acknowledge the potential benefit of developing site specific water quality objectives in concert with development of the Water Quality Improvement Plan.</i></p> <p>The Cities of Dana Point and Laguna Beach requested that the Regional MS4 Permit and Fact Sheet specifically acknowledge the benefit of developing site specific objectives in concert with the development of the Water Quality Improvement Plans, even if development of the site specific objectives may extend the period to complete development of the Water Quality Improvement Plans.</p>	<p>City of Dana Point City of Laguna Beach</p>
<p>RESPONSE: The San Diego Water Board acknowledges that developing site specific water quality objectives (site specific objectives) may be appropriate where there are data that are available to support site specific objectives. The San Diego Water Board, however, disagrees that it is appropriate to delay development and implementation of any Water Quality Improvement Plans with an expectation that site specific objectives will be developed.</p> <p>Any action taken by the San Diego Water Board to establish site specific objectives would require amendment of the Basin Plan to incorporate the site specific objectives before they could be implemented in any NPDES permits or waste discharge requirements issued by the San Diego Water Board. The Basin Planning process requires separate proceedings that need to include the public, the San Diego Water Board, the State Water Board, the Office of Administrative Law, and the USEPA. This process will take much longer to complete than developing the Water Quality Improvement Plan.</p> <p>However, the San Diego Water Board encourages the Copermittees to utilize the Water Quality Improvement Plan development process to identify areas within the Watershed Management Area where developing site specific objectives may be appropriate and include special studies to collect data that can be used to support development of site specific objectives.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-6 GENERAL COMMENTS	
<p>COMMENT: <i>Request for clarification that location of a MS4 within the Port's jurisdictional boundaries does not render the Port an owner or operator of the MS4.</i></p> <p>The San Diego Unified Port District (Port) asserts that just because a MS4 facility falls within its jurisdictional boundaries, which overlap with the Cities of San Diego, National City, Chula Vista, Imperial Beach, and Coronado (Member Cities), that does not mean the Port owns or operates the MS4 facility, and thus the Port would not be responsible for discharges from those MS4 facilities. Therefore, the Port requested revisions to the Tentative Order that clarify this distinction.</p>	<p>San Diego Unified Port District</p>
<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order should be revised to include additional clarification. The Port owns and operates MS4 facilities (streets, curbs and gutters, catch basins, etc.) and lands within the tidelands that either convey or discharge storm water runoff into MS4 facilities owned or operated by Member Cities, or directly to receiving waters. The Port is responsible for complying with permit conditions pertaining to discharges from MS4 facilities and lands the Port owns or operates that discharge into MS4 facilities of Member Cities or directly to receiving waters. The Port must provide the evidence to demonstrate that it does not own or operate MS4 facilities or lands that discharge storm water runoff directly or indirectly into the MS4 facilities owned by the Member Cities.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-7 GENERAL COMMENTS		
	<p>COMMENT: <i>Compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is likely impossible.</i></p> <p>The Cities of Dana Point and Laguna Beach asserts that compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is not practicable and likely impossible. The Cities go on to assert that the Cities are in a position of being required to comply with the discharge prohibitions under all circumstances, or are being required to meet a “zero discharge standard,” both of which are impossible to achieve.</p>	<p>City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water Board does not disagree with the assertion that the Copermittees are not in compliance with all the discharge prohibitions in the Regional MS4 Permit under all circumstances. The San Diego Water Board disagrees that it is not practicable and likely impossible to comply with all of the discharge prohibitions under all circumstances. The cases cited in support of the commenters’ argument are inapposite and factually distinguishable from Order No. R9-2013-0001 (as amended) and the discharge prohibitions and receiving water limitations provisions therein.</p> <p>To date, the Copermittees have not implemented programs that are capable of complying with all of the discharge prohibitions under all circumstances, but that does not mean it is not practicable nor impossible. The assertion that complying with all the discharge prohibitions in the Regional MS4 Permit under all circumstances is not practicable and impossible cannot be supported without first demonstrating that the Copermittees have implemented all of their programs to effectively prohibit non-storm water discharges to the MS4 and reduce pollutants in storm water discharges to the maximum extent practicable (MEP). Moreover, several audits conducted recently by the San Diego Water Board indicate that the Copermittees may not be adequately implementing their basic jurisdictional runoff management program (JRMP) requirements to reduce pollutants in storm water discharges to the MEP standard. Even if the Copermittees implemented the basic JRMP requirements to the MEP standard, the Copermittees can also implement additional practicable actions or programs to comply with all of the discharge prohibitions in the Regional MS4 Permit.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-8	GENERAL COMMENTS	
	<p>COMMENT: <i>Request for clarification by City of Lake Forest for applicability of the Water Quality Improvement Plan development requirements.</i></p> <p>The City of Lake Forest requested clarification on its participation in development of the Water Quality Improvement Plan, based on the agreement that discharges from its MS4 in the San Diego Region will be regulated by the Santa Ana Water Board.</p>	City of Lake Forest
	<p>RESPONSE: The San Diego Water Board expects the City of Lake Forest to contribute to development of the Water Quality Improvement Plan and describe the water quality improvement strategies that will be implemented by the City to comply with TMDL requirements. The strategies implemented by the City of Lake Forest are only expected to implement the requirements of the Phase I MS4 Permit issued by the Santa Ana Water Board, except when and where additional strategies (known as optional jurisdictional strategies or Watershed Management Area strategies in the Regional MS4 Permit) may be necessary to achieve TMDL requirements.</p> <p>Likewise, if the Water Quality Improvement Plan includes final numeric goals that are not based on TMDL requirements, the City of Lake Forest is expected to include descriptions of the water quality improvement strategies that the City may implement to contribute toward achieving those final numeric goals.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-8 GENERAL COMMENTS		
	<p>COMMENT: <i>Recommendations for actions that can be implemented to improve water quality.</i></p> <p>The South Laguna Civic Association provided several recommended actions that may result in improvements to water quality.</p>	<p>South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board appreciates the recommendations. The recommendations, however, appear to be actions that could be implemented as part of water quality improvement strategies by the Copermittees, and not necessarily appropriate to include into the requirements of the Tentative Order. The recommended actions provided by the commenter can be brought to the attention of the south Orange County Copermittees during the development of the Water Quality Improvement Plan.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2015-0100

November 4, 2015 / Revised November 10, 2015

Gnl-10 GENERAL COMMENTS		
	<p>COMMENT: <i>The Regional MS4 Permit illegally authorizes compliance schedules for CTR-based TMDLs beyond May 18, 2010.</i></p> <p>The Environmental Groups assert the Tentative Order and the Regional MS4 Permit illegally authorize compliance schedules for TMDLs to achieve compliance with the CTR as required by the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP).</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order or the Regional MS4 Permit are in conflict with the SIP. The Tentative Order and Regional MS4 Permit are consistent with the TMDLs and the SIP. The Regional MS4 Permit establishes requirements for the regulation of storm water discharges, and the compliance schedule requirements of the SIP do not apply to storm water discharges.</p> <p>Please refer to footnote 1 on page 3 of the SIP which states, “<i>This Policy does not apply to regulation of storm water discharges. The SWRCB has adopted precedential decisions addressing regulation of municipal storm water discharges in Orders WQ 91-03, 91-04, 96-13, 98-01, 99-05, and 2001-15.</i>”</p>	

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	<p>COMMENT: <i>Requests to include language in the prohibitions and limitations of Provision A that is linked to the alternative compliance pathway under Provision B.3.c.</i></p> <p>The Orange County and San Diego County Copermittees, as well as several individual Copermittees, requested the addition of language to Provision A that explicitly states the implementation of the alternative compliance pathway under Provision B.3.c constitutes compliance with the discharge prohibitions and receiving water limitations in Provision A.</p>	<p>Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano San Diego County Copermittees City of Santee County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate or necessary to include additional language to Provision A. Provision A is consistent with the precedential language that was issued under State Water Board Order WQ 99-05. State Water Board Order WQ 2015-0075, which supports the inclusion of the alternative compliance pathway under Provision B.3.c, also states that Phase I MS4 permits should continue to use the receiving water limitations provisions as directed by Order WQ 99-05.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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A1-1	PROVISION A.1: Discharge Prohibitions	
	<p>COMMENT: <i>Request to correct State Water Board Resolution No. 2012-0012 reference in Provision A.1.d to Resolution No. 2012-0031.</i></p> <p>The City of San Diego requested that the reference to State Water Board Resolution No. 2012-0012 in Provision A.1.d be changed to Resolution No. 2012-0031.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board agrees that the correction is appropriate.</p> <p>The reference to “State Water Board Resolution No. 2012-0012” under Provision A.1.d has been revised to “State Water Board Resolution No. 2012-0012, <u>as amended by State Water Board Resolution No. 2012-0031.</u>”</p>	

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A2-1	PROVISION A.2: Receiving Water Limitations	
	<p>COMMENT: <i>Request for removal of receiving water limitations language from Regional MS4 Permit.</i></p> <p>The County of San Diego requested that the San Diego Water Board use its discretion to remove the requirements to comply with receiving water limitations in Provision A.2 of the Regional MS4 Permit.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to remove the requirements to comply with receiving water limitations in Provision A.2 of the Regional MS4 Permit. The receiving water limitations are consistent with precedential State Water Board Orders WQ 99-05 and WQ 2015-0075.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B-1 PROVISION B: WATER QUALITY IMPROVEMENT PLANS		
	<p>COMMENT: <i>Request to revise the language in Provision B.1 to specify the Water Quality Improvement Plans are to address discharges from the MS4.</i></p> <p>The City of San Diego requested Provision B.1 be revised to state that the Copermittees must develop a Water Quality Improvement Plan <u>for their MS4 discharges</u> within each of the Watershed Management Areas in Table B-1.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that the Water Quality Improvement Plans should be specific to just addressing discharges from the MS4.</p> <p>The Regional MS4 Permit is for the regulation of the Copermittees' MS4 discharges, but the Water Quality Improvement Plan is a planning document that requires the Copermittees to evaluate and identify all water quality conditions of concern within a Watershed Management Area. The Copermittees then determine what conditions of concern are the priorities that should be addressed by their individual jurisdictional strategies and/or through watershed-wide strategies. The Water Quality Improvement Plan development process provides the Copermittees flexibility in determining how to address priority issues through establishment of goals that directly improve receiving water quality impacted by MS4 discharges, instead of only limiting goals to MS4 discharges.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B2-1	PROVISION B.2: Priority Water Quality Conditions	
	<p>COMMENT: <i>Request for revisions to the requirements for identifying priority water quality conditions under Provision B.2.</i></p> <p>The South Laguna Civic Association provided proposed revisions to the requirements for identifying priority water quality conditions under Provision B.2. The proposed revisions appeared to include mapping of areas, incorporating areas of concern specific to south Orange County, and identifying issues that may be a concern specific to south Orange County.</p>	<p>South Laguna Civic Association</p>
	<p>RESPONSE: The San Diego Water Board reviewed the requested revisions to the requirements for identifying priority water quality conditions under Provision B.2. The San Diego Water Board did not identify any proposed revisions that were appropriate or necessary. The information requested to be included as part of the proposed revisions is information that should be brought to the attention of the south Orange County Copermittees during the development of the Water Quality Improvement Plan.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-1 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Support for the inclusion of the receiving water limitations alternative compliance pathway in the Regional MS4 Permit.</i></p> <p>The Riverside County, Orange County, and San Diego County Copermittees, as well as several individual Copermittees submitted comments that support the inclusion of the receiving water limitations alternative compliance pathway proposed to be incorporated into the Regional MS4 Permit as Provision B.3.c.</p>	<p>Riverside County Copermittees Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano City of San Diego City of Santee County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board appreciates the support to include the receiving water limitations alternative compliance pathway into the Regional MS4 Permit.</p>	

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B3c-2 PROVISION B.3.c: Prohibitions and Limitations Compliance Option	
<p>COMMENT: <i>Requests for revisions to the requirement for developing and incorporating annual milestones into the schedules for the alternative compliance pathway.</i></p> <p>The Riverside County, Orange County, and San Diego County Copermittees, as well as several individual Copermittees requested revisions to the requirement to develop and incorporate annual milestones into the schedules for the alternative compliance pathway under Provision B.3.c. The Copermittees assert that annual milestones are burdensome, unworkable, and not meaningful. The Copermittees requested that milestones be limited to one or two milestones per permit term.</p>	<p>Riverside County Copermittees Orange County Copermittees City of Lake Forest City of San Clemente City of San Juan Capistrano San Diego County Copermittees City of San Diego City of Santee</p>
<p>RESPONSE: The San Diego Water Board considered the proposed revisions and rationale provided and determined that revisions to the requirement for developing and incorporating annual milestones are appropriate. However, the San Diego Water Board does not agree that milestones should be limited to just one or two per permit term.</p> <p>The development and incorporation of annual milestones into the alternative compliance pathway is necessary for a Copermittee to be able to demonstrate to the San Diego Water Board and the public that there is a commitment to implementing a credible, rigorous, ambitious, and transparent plan to improve the quality of its MS4 discharges and/or receiving waters within its jurisdiction. The San Diego Water Board agrees, however, that annual milestones may become less meaningful after 5 or 10 years. Therefore, Provision B.3.c.(1)(a)(vii) and footnote 9 have been revised as follows:</p> <p><u>Provision B.3.c.(1)(a)(vii)</u> For each final numeric goal developed pursuant to Provisions B.3.a and B.3.c.(1)(a)(i)-(v), at least one annual milestones⁹ and the dates for its <u>their</u> achievement must be included within each <u>of the next five (5) Water Quality Improvement Plan Annual Report reporting periods, or until the final numeric goal is achieved. Annual milestones and the dates for their achievement for the 5 Water Quality Improvement Plan Annual Report reporting periods of the next permit term, or until the final numeric goal is achieved, must be provided as part of the Report of Waste Discharge required pursuant to Provision F.5.</u></p> <p><u>Footnote 9</u> Annual milestones for each final numeric goal must build upon previous milestones and lead to be clearly and directly linked to, or demonstrate progress is being made toward, the achievement of the final numeric</p>	

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B3c-2 PROVISION B.3.c: Prohibitions and Limitations Compliance Option
goal. The annual milestones may consist of water quality improvement strategy implementation phases, interim numeric goals, and other acceptable metrics. <u>The annual milestones may address multiple numeric goals and/or multiple water bodies, as applicable and appropriate.</u>

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B3c-3 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests for revisions to provide additional clarifying language for when a Copermittee is deemed in compliance with receiving water limitations.</i></p> <p>The Riverside County Copermittees requested revisions to the alternative compliance pathway requirements under Provision B.3.c.(2) and the iterative process requirements under Provision A.4 to clarify when a Copermittee is deemed in compliance with receiving water limitations, especially relative to other Copermittees if updates are needed. The Environmental Groups requested revisions to Provision B.3.c.(2) to strictly require achievement of annual milestones and remove the potential for updates as a clearer way of determining when a Copermittee is no longer deemed in compliance.</p>	<p>Riverside County Copermittees Environmental Groups</p>
	<p>RESPONSE: The San Diego Water Board disagrees that revisions to Provision B.3.c.(2) are necessary to clarify when a Copermittee is deemed in compliance. The requirements under Provision B.3.c.(2) are clear criteria that the San Diego Water Board will use to determine if a Copermittee can be deemed in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b.</p> <p>The commenters did, however, identify a scenario during the period of time a Copermittee has submitted “acceptable rationale and recommends appropriate modifications” and the San Diego Water Board accepts the rationale and recommended modifications where it may not be clear if a Copermittee is or is not in compliance. The intent was to continue deeming the Copermittee in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b during this period of time. To clarify this intent, the following has been added to the last paragraph of the discussion of Provision B.3.c on page F-62 in the Fact Sheet:</p> <p style="margin-left: 40px;"><u>The Copermittee continues to be deemed in compliance with the requirements of Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b during the time the San Diego Water Board reviews the rationale and recommended modifications to the interim numeric goals, and/or water quality improvement strategies, and/or schedules. If and when the San Diego Water Board determines that it does not accept the rationale or recommendations, the Copermittee will be notified they are no longer deemed in compliance with Provisions A.1.a, A.1.c, A.1.d, A.2, and A.3.b.</u></p>	

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B3c-4 PROVISION B.3.c: Prohibitions and Limitations Compliance Option	
<p>COMMENT: <i>Requests to include compliance with receiving water limitations during the Water Quality Improvement Plan planning and development process.</i></p> <p>The Riverside County and Orange County Copermittees, several Orange County cities, as well as the County of San Diego requested that the requirements under Provision B.3.c be revised to include compliance with the prohibitions and limitations of Provision A during the development of the Water Quality Improvement Plans. Several of the comments also assert that including compliance during development of the Water Quality Improvement Plan is consistent with State Water Board Order WQ 2015-0075.</p>	<p>Riverside County Copermittees Orange County Copermittees City of Dana Point City of Laguna Beach City of Lake Forest City of San Clemente City of San Juan Capistrano County of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that it is appropriate to deem a Copermittee in compliance with any of the prohibitions and limitations under Provision A before a Water Quality Improvement Plan has been submitted and accepted by the San Diego Water Board. The San Diego Water Board also disagrees that State Water Board Order WQ 2015-0075 communicates that the State Water Board expects or requires in any way that Regional Water Boards allow for compliance with receiving water limitations during development of watershed management plans.</p> <p>The San Diego Water Board is concerned that allowing for compliance during the development of the Water Quality Improvement Plan would remove the motivation or incentive for Copermittees to develop a credible, rigorous, ambitious, and transparent plan. Before the San Diego Water Board can make a determination that a Copermittee has a credible, rigorous, ambitious, and transparent plan that can demonstrate discharges from a Copermittee’s MS4 will not cause or contribute to exceedances of water quality standards in receiving waters, or that receiving waters will be protected from MS4 discharges, the San Diego Water Board must first have an opportunity to review the proposed plan.</p> <p>In response to the assertion that State Water Board Order WQ 2015-0075 encourages or mandates alternative compliance pathways to include compliance during development of the Water Quality Improvement Plan, the commenters failed to provide a clear citation of this direction. There is nothing within the State Water Board Order that explicitly requires the inclusion of an alternative compliance pathway in Phase I MS4 Permit, let alone compliance during development of the plan for alternative compliance. State Water Board Order WQ 2015-0075 only requires the San Diego Water Board to <u>consider</u> inclusion of an alternative compliance pathway, and include findings in the permit if the San Diego Water Board chooses not to include the alternative compliance pathway. In this case, the San Diego Water Board has chosen to incorporate an alternative compliance</p>	

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B3c-4 PROVISION B.3.c: Prohibitions and Limitations Compliance Option
<p>pathway, but without compliance during the development of the Water Quality Improvement Plan.</p> <p>Furthermore, the San Diego Water Board notes that USEPA has provided written comments to the Los Angeles Water Board (click here and here for links to letters), the Santa Ana Water Board (click here for link to letter), and the State Water Board click here for link to letter) that support the San Diego Water Board's approach to alternative compliance with receiving water limitations, specifically supporting the San Diego Water Board's decision not to include compliance during the development period for the Water Quality Improvement Plan. Based on this expressed support from USEPA, and the other reasons cited above, the San Diego Water Board is not allowing for a Copermittee to be deemed in compliance with the prohibitions and limitations under Provision A during the development of the Water Quality Improvement Plans.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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B3c-5 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Request to include receiving water limitations for ASBS under Provision A.2.b as part of alternative compliance pathway.</i></p> <p>The City of San Diego requested that the alternative compliance pathway be revised to also include compliance with the ASBS receiving water limitations required under Provision A.2.b.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board considered the request to include the receiving water limitations for ASBS under Provision A.2.b as part of the alternative compliance pathway under Provision B.3.c and agree it is appropriate.</p> <p>References to “Provisions A.1.a, A.1.c, A.1.d, A.2.a, and A.3.b” under Provision B.3.c have been revised to “Provisions A.1.a, A.1.c, A.1.d, A.2.a, and A.3.b.”</p>	

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B3c-6 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>Requests for revisions to alternative compliance pathway numeric goal requirements proposed under Provision B.3.c.(1)(a)(iii).</i></p> <p>The City of San Diego requested a revision to combine Provisions B.3.c.(1)(a)(iii) and B.3.c.(1)(a)(iv) to reduce confusion regarding whether the categories of numeric goals are mandatory or optional. The County of San Diego requested additional language to be added to Provision B.3.c.(1)(a)(iii) to limit the numeric goals for MS4 discharges only to pollutants or conditions where MS4 discharges are causing or contributing to the impairment.</p>	<p>City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the revisions requested are appropriate or necessary.</p> <p>The City of San Diego’s requested revision does not provide more clarity, and actually reduces the available options for numeric goals. Provisions B.3.c.(1)(a)(iii) and B.3.c.(1)(a)(iv) allow a Copermittee to choose interim and final numeric goals applicable to the Copermittee’s MS4 outfalls, OR interim and final numeric goals applicable to the receiving waters, OR a combination of both. The City’s proposed revisions would only allow a Copermittee to choose interim and final numeric goals applicable to the Copermittee’s MS4 outfalls, OR interim and final numeric goals applicable to the receiving waters, but NOT a combination of both.</p> <p>The San Diego Water Board disagrees that the County’s proposed revision is necessary because if a Copermittee’s MS4 discharges do not contain pollutants that are causing or contributing to an impairment listed on the Clean Water Act Section 303(d) List of Water Quality Impaired Segments, the Copermittee should not have difficulty developing and including final numeric goals that can demonstrate their discharges are not causing or contributing to the impairment. The Copermittee will also have to collect data to demonstrate that the final numeric goals have been achieved and continue to be achieved. The data collected, assessed, and reported will demonstrate that the Copermittee is not causing or contributing to the impairment listed on the Clean Water Action Section 303(d) List.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-7 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The alternative compliance pathway would result in safe harbor protection and should be removed from the Regional MS4 Permit.</i></p> <p>The Environmental Groups assert that providing the alternative compliance pathway provides the Copermittees with safe harbor protection, and requested the alternative compliance pathway be removed from the Regional MS4 Permit.</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board does not agree that the alternative compliance pathway provides the Copermittees with safe harbor protection that “simply mimics the failed iterative approach.” Compliance with the alternative compliance pathway means, for compliance determination purposes, that the San Diego Water Board would deem a Copermittee that has fulfilled the requirements of the alternative compliance pathway as in compliance with the receiving water limitations. As long as the Copermittee is in compliance with the requirements under Provision B.3.c, the San Diego Water Board can consider the Copermittee in compliance with the prohibitions and limitations. Complying with the requirements of Provision B.3.c, however, will require a significant commitment, level of effort, and resources from any Copermittee that chooses to implement it. Any Copermittee that can comply with the requirements of Provision B.3.c will also be demonstrating a well defined and transparent commitment to improve water quality.</p> <p>Please also see responses to comments Gnl-10 and B3c-8.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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B3c-8 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The alternative compliance pathway is inconsistent with the State Water Board's Order.</i></p> <p>The Environmental Groups assert that the alternative compliance pathway in the Tentative Order is inconsistent with State Water Board Order WQ 2015-0075. The Environmental Groups assert that the alternative compliance pathway proposed in the Tentative Order is inconsistent because a) it does not contain specific guidance or protocols for a “well defined” and “transparent” analysis, b) it does not require a “finite” period of time to achieve receiving water limitations, and c) it does not include requirements for multi-benefit or storm water resource projects.</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board disagrees that the alternative compliance pathway proposed in the Tentative Order is inconsistent with the State Water Board Order. The alternative compliance pathway in the Tentative Order is consistent with the State Water Board Order for the following reasons:</p> <p>a) In response to the assertion that the alternative compliance pathway in the Tentative Order does not include specific guidance or protocols for a “well defined” and “transparent analysis, the approach of the alternative compliance pathway in the Tentative Order is actually more “well defined” and “transparent” than the example provided by the commenter. The commenter provides permit language from the Los Angeles MS4 Permit as an example of specific guidance and protocols for a reasonable assurance analysis. While there is more description as to what components the reasonable assurance analysis must include, fundamentally the analysis is based on a computer model consisting of equations with assumptions which utilize data that are entered into and processed by a computer. Many of the variables in the equations will be based on assumptions, and members of the public may not know or understand how those variables may impact the results. The Los Angeles MS4 Permit does not include provisions that allows for or requires public participation or review of the model, its assumptions, and inputs.</p> <p>In contrast, the alternative compliance pathway in the Tentative Order does require an analysis with “clearly stated assumptions” which must go through a public participation process that allows the public to review and provide comments on the analysis methodology and the assumptions included in the analysis. The main difference in the approaches is that the Copermittee has more flexibility with how to do the analysis, and as long as there is understanding and support from the public and the San Diego Water Board. The Copermittee is not just limited to one or two “acceptable” models, but also is not precluded from the use of those models. The Tentative Order alternative compliance pathway is a truly transparent process for the public and provides for the public to participate in how the analysis is defined. Based on these</p>	

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B3c-8	PROVISION B.3.c: Prohibitions and Limitations Compliance Option
	<p>considerations, the analysis requirement is “well defined” and “transparent” consistent with the State Water Board Order.</p> <p>b) In response to the assertion that the alternative compliance pathway in the Tentative Order does not require a “finite” period of time to achieve compliance with receiving water limitations, the alternative compliance pathway requires a Copermittee to provide a schedule for when receiving water limitations are expected to be achieved. Any schedule with an expected end date is “finite.” However, “finite” should not mean there is not room for making adjustments to the schedule if conditions warrant it.</p> <p>Absent the alternative compliance pathway, no assessments would necessarily be conducted to determine if or when receiving water limitations have been fully achieved. The San Diego Water Board prefers a permit that will provide support, incentive, and motivation for the Copermittees to achieve compliance with receiving water limitations within a foreseeable future rather than a permit that only has the threat of enforcement in the present and the foreseeable future. However, while the alternative compliance pathway removes the immediate threat of enforcement for violations of receiving water limitations, it also includes additional requirements that can be used to hold the Copermittee more accountable for implementing strategies to achieve compliance with receiving water limitations. In the end, the San Diego Water Board believes that the alternative compliance pathway provides a path to compliance with receiving water limitations that is “finite” compared to the “iterative process” that was previously required, consistent with the State Water Board Order.</p> <p>c) In response to the assertion that the alternative compliance pathway in the Tentative Order does not include requirements for multi-benefit or storm water resource projects, the San Diego Water Board acknowledges there is no text in Provision B.3.c that includes the term “multi-benefit.” However, the Tentative Order does include several provisions that encourage multi-benefit and regional storm water resource projects without using the term “multi-benefit.”</p> <p>The commenter should first review Provisions B.3.b.(1)(b) and B.3.b.(2). While these provisions are not specifically mentioned under Provision B.3.c, they are required to be included in the Water Quality Improvement Plan, which is where the alternative compliance pathway requirements of Provision B.3.c must be included. Provision B.3.b.(1)(b) requires each Copermittee to identify strategies to retrofit areas of existing development and rehabilitate conditions of channels or habitats within its jurisdiction, which are considered multi-benefit strategies. Provision B.3.b.(2) also requires the Copermittees in the Watershed Management Area to identify strategies to retrofit areas of existing development and rehabilitate conditions of</p>

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B3c-8 PROVISION B.3.c: Prohibitions and Limitations Compliance Option
<p>channels or habitats that are regional or multi-jurisdictional.</p> <p>Tied to Provisions B.3.b.(1)(b) and B.3.b.(2) are also the jurisdictional runoff management program (JRMP) requirements under Provisions E.3.c.(3) and E.5.e. Provision E.5.e requires each Copermittee to identify areas of existing development within its jurisdiction for retrofit and rehabilitation projects, and to identify strategies to facilitate implementation of those projects. Provision E.3.c.(3) provides each Copermittee the option to allow development projects to implement candidate projects identified as part of the optional Watershed Management Area Analysis allowed pursuant to Provision B.3.b.(4), also included in the Water Quality Improvement Plan. The candidate projects include several types of multi-benefit and storm water resource type projects, including but not limited to stream or riparian area rehabilitation, retrofitting existing infrastructure to incorporate storm water retention or treatment, regional BMPs, groundwater recharge projects, water supply augmentation, and land purchases to preserve floodplain functions. Therefore, while the alternative compliance pathway requirements under Provision B.3.c do not include the term “multi-benefit” in the text, the Tentative Order includes several provisions that require or encourage the implementation of multi-benefit and storm water resource projects consistent with the State Water Board Order.</p>

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B3c-9 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The Tentative Order violates anti-backsliding requirements and the rationale provided does not support an anti-backsliding exception.</i></p> <p>The Environmental Groups assert that the Tentative Order violates the anti-backsliding provisions of the Clean Water Act and its implementing regulations because the San Diego Water Board's findings related to the alternative compliance pathway fail to support the use of anti-backsliding exceptions.</p>	Environmental Groups
	<p>RESPONSE: The San Diego Water Board disagrees that the Tentative Order violates anti-backsliding provisions of the Clean Water Act and the federal regulations. The Clean Water Act generally prohibits the relaxation of effluent limitations in a reissued permit. However, as discussed in the Fact Sheet, it remains unresolved whether anti-backsliding provisions are applicable to the incorporation of an alternative compliance pathway into a regional MS4 permit. (please see page F-32 of the Fact Sheet; <i>please also see State Board Order WQ 2015-0075 at pp 18-21, stating "it is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions"</i>).</p> <p>Even if the anti-backsliding provisions do apply, the alternative pathway provisions fit squarely within an exception. There are numerous exceptions to the Clean Water Act's backsliding provisions based on new information. See, e.g., 33 U.S.C. § 1342(o)(2)(B)(i), 40 C.F.R. § 122.44(l)(i)(B)(1). Additionally, Under 40 C.F.R. section 122.44(l), anti-backsliding provision do not apply if the circumstances on which the previous permit was based have materially and substantially changed since the time the previous permit was issued and would constitute cause for permit modification or revocation or reissuance under 40 C.F.R. section 122.62. Section 122.62 in turn states that new information not available at the time the previous permit was issued is cause for modification. 40 C.F.R. § 122.62(a)(2).</p> <p>Furthermore, the San Diego Water Board disagrees with the assertion that the new information from the lessons learned and experiences of the Los Angeles Water Board are somehow "unique" to the Los Angeles Region. To the extent that the permitting history in Los Angeles may be considered "unique" in any way, it is still consistent with the San Diego Water Board's experience with storm water permitting over the last decade. The transition to a Regional MS4 Permit in the Fifth Term Permit was driven, in part, by a growing recognition that a watershed management approach required regional action. In the Regional MS4 permit, the San Diego Water Board seeks to provide a consistent set of permit requirements for all of the Copermitttees and to promote the efficiencies gained from collective action in jurisdictional runoff management.</p>	

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B3c-9 PROVISION B.3.c: Prohibitions and Limitations Compliance Option

The San Diego Water Board structured the Regional MS4 Permit to incorporate new information because there has been a statewide paradigm shift with respect to stormwater management. In June 2015, the State Water Board issued a precedential water quality order, Order WQ 2015-0075. This Order directed all of the Regional Water Boards to consider the Los Angeles Water Board's alternative compliance path to receiving water limits in all Phase I MS4 permits going forward (State Water Board Order WQ 2015-0075 at p 51). Moreover, the State Water Board made it clear that all regional water boards had been informed by the lessons learned in Los Angeles, stating "[f]urther, we [the State Water Board] find that all regional water boards are informed by the information gained in the Los Angeles Region, so that any regional water board that adopts an alternative compliance path in a subsequent Phase I permit would not be in violation of anti-backsliding requirements, regardless of the particular storm water permitting history of that region." *Id.* at p. 22 fn. 74. Thus, while the State Water Board Order relies heavily on the information and evidence related to the Los Angeles County MS4 Permit and its version of an alternative compliance pathway, the information and evidence are also applicable to and are expected to be utilized in the San Diego Region if an alternative compliance pathway is incorporated into the San Diego Regional MS4 Permit.

For all of the reasons stated above, the alternative compliance path provisions do not violate federal anti-backsliding provisions. To clarify, however, the discussion on Anti-Backsliding Requirements on page F-32 in the Fact Sheet has been revised as follows:

CWA sections 402(o) and 303(d)(4) and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations or conditions may be relaxed. While this Order allows implementation of an alternative compliance pathway option in Provision B.3.c to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding availability of additional time to come into compliance with receiving water limitations does not violate the antibacksliding provisions. The receiving water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act rather than based on best professional judgment, or based on section 301(b)(1)(C) or sections 303(d) or (e), and are accordingly not subject to the anti-backsliding requirements of section 402(o). Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 CFR 122.44(l), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional point sources. (See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979)). It

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is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because the alternative compliance pathway option in Provision B.3.c qualifies for an exception to backsliding as based on new information.

The alternative compliance pathway option in Provision B.3.c of this Order was informed by new information available to the Board from experience and knowledge gained through storm water permitting at the Regional Water Boards in the last ten years. There has been a statewide paradigm shift in storm water management. State Water Board Order WQ 2015-0075 directed all of the Regional Water Boards to consider the Los Angeles Water Board's alternative compliance path to receiving water limitations in all Phase I MS4 permits going forward (State Water Board Order WQ 2015-0075 at page 51) ~~It~~, and the Los Angeles Water Board's process of developing over 30 watershed-based TMDLs and implementing several TMDLs since the adoption of the previous permits. In particular, the Los Angeles Water Board recognized the significance of allowing time to plan, design, fund, operate and maintain watershed-based BMPs necessary to attain water quality improvements and additionally recognized the potential for municipal storm water to benefit water supply. Similarly, the San Diego Water Board's experience developing and implementing the Fourth Term MS4 Permits and TMDLs that apply on a regionwide scale (i.e. TMDLs for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region) has resulted in a similar recognition of the need for a watershed-based approach that allows time to plan, design, fund, operate and maintain BMPs to address impaired waters that have been impacted by MS4 discharges. Thus, even if the receiving water limitations are subject to anti-backsliding requirements, they were revised based on new information that would support an exception to the anti-backsliding provisions. (33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1); 40 C.F.R. §122.44(l)(2)(i)(B)(1)).

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B3c-10 PROVISION B.3.c: Prohibitions and Limitations Compliance Option		
	<p>COMMENT: <i>The Tentative Order violates anti-degradation requirements and the anti-degradation findings are unsupported by evidence.</i></p> <p>The Environmental Groups assert that the Tentative Order violates anti-degradation requirements and there is no evidence to support the anti-degradation findings. The Environmental Groups generally assert that anti-degradation findings from State Water Board Order WQ 2015-0075 are not applicable to the Tentative Order and the findings in the Tentative Order are unsupported by evidence.</p>	Environmental Groups
	<p>RESPONSE: Consistent with the direction of the State Water Board Order WQ 2015-0075 adopted in June 2015, the San Diego Water Board considered the inclusion of an alternative compliance pathway into the Regional MS4 Permit. With the inclusion of this new permit component, the federal and state antidegradation policies were considered in light of the evidence in the record and information about the nature of municipal storm water discharges, evolving municipal storm water permits and the State Water Board’s precedential order. The Regional MS4 Permit and Fact Sheet were revised to be consistent with all of these considerations.</p> <p>The San Diego Water Board disagrees that the antidegradation findings in the Tentative Order are inadequate and unsupported by evidence in the record. The San Diego Water Board considered relevant information unique to the San Diego Region such as its own storm water permitting history and TMDL adoption and implementation through municipal storm water permits. The San Diego Water Board has adopted seven TMDL Basin Plan amendments that cover at least 30 waterbody-pollutant combinations, similar to the Los Angeles Region. The implementation of these 7 TMDLs through the Regional MS4 Permit is essential for achieving water quality standards in the region. Moreover, the State Water Board’s discussion of appropriate antidegradation considerations for the Los Angeles MS4 Permit is equally applicable in the context of the San Diego Water Board’s Tentative Order that incorporates an alternative compliance pathway. In its consideration of antidegradation, the State Water Board acknowledges that the Los Angeles MS4 permit “improves on past practices that have been inadequate to protect water quality, and includes a monitoring and assessment program that will identify any changes in water quality. [fn.] In general, under the Los Angeles MS4 Order, we expect to see a trajectory away from any past degradation, even if there may be some continued short-term degradation.” (Order WQ 2015-0075, p. 26.) Likewise, the Regional MS4 Permit now requires Copermitees to design watershed based monitoring and assessment programs that promote and track progress towards meeting the relevant water quality objectives. As such, were the State Water Board considering the Tentative Order, it likely would reach the same conclusion about the San Diego Regional MS4 Permit.</p>	

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The commenters incorrectly assert that the San Diego Water Board is required, but has failed, to follow procedures and requirements set forth in a USEPA document titled “*Interim Economic Guidance for Water Quality Standards Workbook*” (March 1995) (Workbook). USEPA’s Workbook provides guidance that states may choose, but are not required, to follow. Although the Workbook does provide some information that states *may* use to consider whether degradation of high-quality waters is warranted from an economic impacts perspective, the guidance was not crafted to be used in the context of permitting of MS4 discharges. (See USEPA Workbook, cover memo, pp. 1-2 and Workbook, p. 1-1.) Instead, the San Diego Water Board has considered available guidance provided by the State Water Board in the Administrative Procedures Update (APU) 90-004 in conjunction with, among other things, available evidence about the quality of the receiving waters for discharges of storm water in finding that the Tentative Order complies with federal and state anti-degradation policies¹. The antidegradation findings in the Tentative Order, like those adopted in the State Water Board Order for the final Los Angeles MS4 Permit, are supported by substantial evidence in the record for the Regional MS4 Permit.

In the stormwater context, a generalized antidegradation analysis is appropriate. As the State Water Board acknowledges, guidance provided in the APU 90-004 “may be construed to exempt [a regional water board] from conducting an extensive pollutant by pollutant analysis for each water body in the region” where, as here, there is insufficient data available to carry out a complete antidegradation analysis for each water body-pollutant combination.” (See Order WQ 2015-0075, p. 25.) The State Water Board notes the APU-90-004 “contemplates the appropriate antidegradation analysis for a discrete discharge or facility. It has limited value when considering anti-degradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, a region, especially given that reliable data on the baseline water quality from 1968 is not available.” (Id., p. 27; see also id., p. 27, n. 90 [“We note that USEPA did not conduct a detailed antidegradation analysis in issuing NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia, presumably for similar reasons. The court in *Asociacion de Gente Unida* also relied on APU 90-004 in part in rejecting an antidegradation analysis conducted by the Central Valley Regional Water Quality Control Board for discharges of pollutants to groundwater from dairy facilities region-wide, but the court’s objection was to the regional water board’s reliance on an illusory prohibition of discharge to groundwater in finding that no antidegradation analysis

¹ See, e.g., 1996, 1998, 2002, 2006, 2010 Clean Water Action section 303(d) Lists for the San Diego Region, and monitoring reports from the San Diego County, Orange County, and Riverside County Copermittees since the First Term MS4 Permits issued in 1990.

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<p>was required, not to the sufficiency of any generalized antidegradation analysis the Board might have conducted in lieu of its reliance on the prohibition. (210 Cal.App.4th at pp. 1271-1273.]” Despite the commenters’ assertions, the San Diego Water Board provides a clear statement of the basis for finding that the Tentative Order is consistent with the federal and state antidegradation policies.</p> <p>No revisions to the Tentative Order were made in response to these comments.</p>

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B5-1 PROVISION B.5: Iterative Approach and Adaptive Management Process		
	<p>COMMENT: <i>Request for clarification of timing and conditions for alternative compliance pathway analysis updates.</i></p> <p>The San Diego County Copermittees and the County of San Diego requested the addition of a provision under the Iterative Approach and Adaptive Management Process requirements of Provision B.5 to clarify the timing and conditions for when the analysis required for the alternative compliance pathway under Provision B.3.c.(1)(b) has to be updated.</p>	<p>San Diego County Copermittees County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board has considered the requested additional language and determined that adding clarifying language is appropriate.</p> <p>The following text has been added as Provision B.5.d:</p> <p style="margin-left: 40px;"><u>d. ADAPTATION OF PROHIBITIONS AND LIMITATIONS COMPLIANCE OPTION</u></p> <p style="margin-left: 40px;"><u>If a Copermittee has implemented the Prohibitions and Limitations Compliance Option allowed to be included in the Water Quality Improvement Plan pursuant to Provision B.3.c, the Copermittee must re-evaluate and adapt the numeric goals, water quality improvement strategies, schedules, and annual milestones required under Provision B.3.c.(1) when significant new information becomes available, or with the Report of Waste Discharge required pursuant to Provision F.5. Significant changes in the numeric goals, water quality improvement strategies, schedules, or annual milestones requires an update to the analysis required under Provision B.3.c.(2).</u></p>	

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D4a-1 PROVISION D.4.a: Receiving Waters Assessments		
	<p>COMMENT: <i>Recommended revisions to transitional assessment requirements under Provision D.4.a.(1)(a).</i></p> <p>The Riverside County Copermittees noted that Provision D.4.a.(1)(a) prescribes that assessments required to be made under Provision D.4.a.(2) must be included in each Copermittees' transitional monitoring and assessment reports; however, Provision D.4.a.(2)(e) requires determination of whether strategies identified in the Copermittees' Water Quality Improvement Plan are progressing towards achieving interim and final numeric goals described in the Water Quality Improvement Plan. The Riverside County Copermittees provided their understanding that transitional monitoring and assessment applies to the time period when the Copermittees' Water Quality Improvement Plan is being developed, and therefore assessments made during this time period cannot provide information on the progress of the Water Quality Improvement Plan. Based on their observations, the Riverside County Copermittees recommended revisions to Provision D.4.a.(1)(a).</p>	Riverside County Copermittees
	<p>RESPONSE: The San Diego Water Board disagrees that the revisions to Provision D.4.a.(1)(a) are necessary.</p> <p>It is true that the transitional monitoring and assessment applies to the time period when the Water Quality Improvement Plan is being developed. The commenters can fulfill the assessment requirement of Provision D.4.a.(2)(e) by either stating that they cannot make a determination until the Water Quality Improvement Plan is accepted and implemented, or assess the strategies that are currently being implemented at the time of the assessment and are expected to be included in the Water Quality Improvement Plan. The San Diego Water Board expects the assessments reported during the transitional period to serve as a baseline for improvements in water quality as the Water Quality Improvement Plans are implemented over time.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E2-1 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Requests for revisions to clarify implementation of the illicit discharge and detection program under Provision E.2 is compliance with the requirement to effectively prohibit non-storm water discharges to the MS4.</i></p> <p>The Orange County Copermittees, as well as the Cities of Dana Point and Laguna Beach, requested revisions to Provision E.2 to explicitly state that implementation of the illicit discharge detection and elimination requirements under Provision E.2 constitutes compliance with effective prohibition of non-storm water discharges to the MS4 required under Provision A.1.b.</p>	<p>Orange County Copermittees City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: The San Diego Water disagrees that revisions to Provision E.2 are necessary. Provision A.1.b explicitly states that Copermittees are required to effectively prohibit non-storm water discharges to the MS4 “through the implementation of Provision E.2.” The Copermittees are already expected to demonstrate compliance with Provision A.1.b through the implementation of Provision E.2. If a Copermittee has not adequately implemented Provision E.2, then the Copermittee is not only, not in compliance with the requirements of Provision E.2, but by default will also not be in compliance with Provision A.1.b.</p> <p>The San Diego Water Board, however, recognizes that additional clarification may be helpful in understanding that implementing the requirements of Provision E.2 is how the San Diego Water Board will assess a Copermittee’s compliance with the requirement to effectively prohibit non-storm water discharges to the MS4 under Provision A.1.b. Therefore, the San Diego Water Board has revised the opening paragraph of the discussion for Provision E.2 in the Fact Sheet (page F-81) to the following:</p> <p style="padding-left: 40px;">Provision E.2.(Illicit Discharge Detection and Elimination) requires each Copermittee to implement an illicit discharge detection and elimination program to effectively prohibit non-storm water discharges to the MS4 by actively detecting and eliminating illicit discharges and disposal into its MS4. <u>If the San Diego Water Board finds that a Copermittee is fully implementing the requirements of Provision E.2, then the Copermittee is deemed in compliance with the effective prohibition of non-storm water discharges to the MS4 required under Provision A.1.b.</u></p>	

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E2-2 PROVISION E.2: Illicit Discharge Detection and Elimination		
	<p>COMMENT: <i>Request for clarification of discharges of potable water sources under Provision E.2.a.(3)(f).</i></p> <p>The Cities of Dana Point and Laguna Beach requested a clarification of the definition of “discharges from potable water sources” under Provision E.2.a.(3)(f). It is not clear to the Cities whether “potable discharges” are intended to include runoff derived from turf or ornamental plant irrigation.</p>	<p>City of Dana Point City of Laguna Beach</p>
	<p>RESPONSE: Discharges from potable water sources are sources of water that have been treated to drinking water standards and discharged to the MS4. Discharges of potable water that are applied to turf or ornamental plant irrigation before running off to the MS4 are not qualified as discharges of potable water under Provision E.2.a.(3)(f).</p>	

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E3b1-1 PROVISION E.3.b.(1): Definition of Priority Development Project		
	<p>COMMENT: <i>Request for revisions to the definition of Priority Development Projects under Provision E.3.b.(1).</i></p> <p>The City of San Diego requested revisions to combine Provisions E.3.b.(1)(c) and E.3.b.(1)(e) under the provisions defining Priority Development Projects.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that combining sub-sections (c) and (e) of Provision E.3.b.(1) is appropriate. Sub-section (c) has a minimum square footage trigger for both new development projects and redevelopment projects. In contrast, subsection (e) has a minimum square footage trigger for redevelopment projects only; new development projects consisting of automotive repair shops and retail gasoline outlets are considered Priority Development Projects regardless of size.</p>	

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E3b3-1 PROVISION E.3.b.(3): Priority Development Project Exemptions		
	<p><u>COMMENT:</u> <i>Request for Priority Development Project exemption for “self-remediating” projects.</i></p> <p>The Orange County Copermittees requested that the list of Priority Development Project Exemptions under Provision E.3.b.(3) be revised to include projects that are effectively self-remediating (i.e. all rainfall is retained) including, but not limited to, reservoirs and swimming pools.</p>	<p>Orange County Copermittees</p>
	<p><u>RESPONSE:</u> The San Diego Water Board disagrees that the requested change is necessary. If all rainfall is retained on a project, then the project has met the design standard, and an exemption is not needed.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E3c1-1 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>Request for revisions to clarify the biofiltration storm water pollutant control BMP performance criteria.</i></p> <p>The County of San Diego requested a revision to Provision E.3.c.(1)(a)(i)[b] to clarify the intent and applicability of the biofiltration BMP design criteria.</p>	County of San Diego
	<p>RESPONSE: The San Diego Water Board disagrees that the proposed change is necessary. The wording describing the design requirements adequately describe the intent and applicability of the biofiltration BMP design criteria. Any proposed change incorporated during the adoption proceedings of the Tentative Order could be interpreted as a change in the requirement, when in fact there is no change.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E3c1-2 PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements		
	<p>COMMENT: <i>The San Diego Water Board is requiring increasingly stringent on-site storm water retention without evidence that the 2010 Southwest Riverside MS4 Permit requirements are not working.</i></p> <p>CICWQ asserts that the Tentative Order has more stringent on-site storm water retention requirements than the 2010 Southwest Riverside County MS4 Permit (Order No. R9-2010-0016) requirements without any evidence that the requirements of Order No. R9-2010-0016 are not working to protect water quality and maintain beneficial uses.</p>	<p>Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees with the assertion that the Tentative Order has more stringent on-site storm water retention requirements over and above the requirements of Order No. R9-2010-0016.</p> <p>The purpose of the on-site retention requirement in both the Tentative Order and Order No. R9-2010-0016 is to retain on-site the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event. This requirement has not changed from Order No. R9-2010-0016, and therefore the commenter is incorrect in stating that the San Diego Water Board is requiring additional prescriptive performance measures for retaining storm water runoff. This is the maximum extent practicable (MEP) standard recognized by the San Diego Water Board and is consistent with the Fourth Term MS4 Permits for Orange County and Riverside County (Order Nos. R9-2009-0002 and R9-2010-0016, respectively), as well as Santa Ana Water Board Order Nos. R8-2009-0030 and R8-2010-0033 (Orange County and Riverside County MS4 Permits, respectively), Los Angeles Water Board Order Nos. R4-2010-0108 and R4-2012-0175 (Ventura County and Los Angeles County MS4 Permits, respectively).</p> <p>Additionally, the storm water pollutant control and hydromodification management BMP requirements in the Tentative Order are more flexible than in Order No. R9-2010-0016 by providing an optional Alternative Compliance Program under Provision E.3.c.(3) of the Regional MS4 Permit. The Alternative Compliance Program, if developed by a Copermittee, would allow Priority Development Projects to fully comply with storm water pollutant control and hydromodification management BMP requirements either on-site, offsite, or a combination of both, if doing so would provide greater water quality benefit to the watershed.</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Request for revisions to requirements to manage critical coarse sediment yield areas.</i></p> <p>CICWQ asserts that the Tentative Order requirements for Priority Development Projects to “avoid critical sediment yield areas” are unnecessarily restrictive. The County of San Diego requested that the requirement to manage critical course sediment yield areas be moved from the hydromodification management BMP performance standard requirements under Provision E.3.c.(2)(b) to Provision E.3.d as part of the BMP Design Manual update to be addressed regionally.</p>	<p>County of San Diego Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the requirements to avoid critical sediment yield areas are unnecessarily restrictive or that they should be moved from under Provision E.3.c.(2)(b) to Provision E.3.d. The requirements are necessary to protect receiving waters from erosive flows caused by land development.</p> <p>As explained in the Fact Sheet to the Tentative Order, hydromodification, which is caused by both altered storm water flow and altered sediment flow regimes, is largely responsible for degradation of creeks, streams, and associated habitats in the San Diego Region. In an ongoing study by the Stormwater Monitoring Coalition to assess the health of streams throughout Southern California, researchers found that three of the four highest risk stressors to creeks (percent sands and fines present, channel alteration, and riparian disturbance) were related to physical habitat (<i>Assessing the Health of Southern California Streams, Stormwater Monitoring Coalition, Fact Sheet</i>). Researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22 percent can result in increases in peak flow rates for the two-year storm event of up to 100 percent (Schueler and Holland, 2000. <i>Storm Water Strategies for Arid and Semi-Arid Watersheds</i>, (Article 66). <i>The Practice of Watershed Protection</i>). Such changes in runoff have significant impacts on channel morphology, and given the current state of science the San Diego Water Board has included these requirements to reduce these potential impacts to receiving waters that may be caused by development projects.</p> <p>Placement of impervious surfaces as a result of urbanization is largely responsible for erosional impacts to streams because placement of impervious surfaces encapsulates “good” sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks to help stabilize them. For this reason, the Tentative Order requires Priority Development Projects to avoid critical sediment yield areas, as defined by the</p>	

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E3c2-1 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>Copermittees, or implement measures to allow coarse sediment to be discharged to receiving waters, such that there is no net impact to the receiving water. Such measures are designed to protect receiving waters and avoid impacts experienced as a result of past land development practices.</p> <p>The San Diego Water Board recognizes that implementation of new requirements is challenging, and is supportive of the Copermittees' efforts to develop guidance for land developers in meeting this requirement. Until this guidance is widely available, Copermittees and land developers should recognize that strict avoidance of critical sediment yield areas is not mandated and that compliance may be achieved by other methods, provided that the stream experiences "no net impact."</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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E3c2-2 PROVISION E.3.c.(2): Hydromodification Management BMP Requirements		
	<p>COMMENT: <i>Request for interim timeframe exemptions for hydromodification management BMP requirements to be granted outright without any additional study or consideration.</i></p> <p>CICWQ asserts that the Tentative Order is eliminating exemptions for hydromodification control, even when stormwater runoff is conveyed in the MS4 system to significantly hardened or engineered channels. CICWQ requested that the San Diego Water Board revise the Tentative Order to make the interim timeframe exemptions under Provision E.3.c.(2)(e) part of the exemptions under Provision E.3.c.(2)(d) without any additional study or consideration.</p>	<p>Construction Industry Coalition on Water Quality (CICWQ)</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the interim timeframe exemptions for hydromodification management BMP requirements should be granted outright without any additional study or consideration.</p> <p>The commenter correctly deduced that the driver behind the requirement to use the pre-development performance standard is the sustainability of geomorphically stable channels and the ability to return urbanized streams to a more natural state. The requirement to use pre-development runoff conditions as the performance standard is needed because using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds, which in turn supports conditions for rehabilitating degraded or channelized stream segments.</p> <p>Contrary to what the commenter asserts, the Tentative Order does not require Copermittees to remove concrete from channels that are engineered to relieve flooding and protect life and property. The Tentative Order provides exemptions for Priority Development Projects that discharge to receiving waters where there is little threat of erosion, and subsequently implementing BMPs on-site would do little to protect the beneficial uses of such receiving waters. The commenter correctly states that the exemption for engineered channels is temporary. However, the commenter should note that there is a high likelihood that exemptions for engineered channels can become accepted as applicable for a Watershed Management Area. The Tentative Order allows for the Copermittees to recommend exemptions based on completion of an optional Watershed Management Area Analysis pursuant to Provision B.3.b.(4). As part of this effort, the Copermittees would identify, for example, areas of existing development in the watershed suitable for retrofitting, and areas suitable for stream rehabilitation. The Copermittees would also identify areas suitable for exemptions for hydromodification management, such as engineered channels that are needed for the protection of life and property. The interim</p>	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements
	<p>timeframe exemption for engineered channels is not granted outright as permanent exemptions because the areas have not yet been analyzed in the context of stream rehabilitation opportunities.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>

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E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	<p>COMMENT: <u>The requirement in the Regional MS4 Permit for Priority Development Projects to avoid coarse sediment yield areas results in a potential “taking” of private property.</u></p> <p>Safari Highlands Ranch asserts that the requirement under Provision E.3.c.(2)(b) of the Regional MS4 Permit for Priority Development Projects to avoid critical coarse sediment yield areas known to the Copermittees or identified by the optional Watershed Management Area Analysis will result in a “taking” of the total land value of private property that is located in areas identified as critical coarse sediment yield areas.</p>	<p><u>Safari Highlands Ranch</u></p>
	<p>RESPONSE: <u>The San Diego Water Board disagrees with the assertion that the requirements under Provision E.3.c.(2)(b) results in a “taking” of private property if the development project is located in area identified by the Copermittees as a critical coarse sediment area.</u></p> <p><u>Provision E.3.c.(2)(b) does not require the Copermittees to prohibit a development project from going forward if it cannot avoid critical coarse sediment yield areas. Provision E.2.c.(2)(b) states that Priority Development Projects are required to avoid critical sediment yield areas OR implement measures that allow critical coarse sediment to be discharged to receiving water, such that there is no net impact to the receiving waters.</u></p> <p><u>Provision E.3.c.(2)(b) provides the Copermittees the ability to allow Priority Development Projects to implement measures other than avoiding coarse sediment yield areas to achieve no net impact to the receiving waters. The Copermittees allows this is through the requirements in their BMP Design Manuals. The San Diego Water Board has reviewed the San Diego County Copermittees’ Final Model BMP Design Manual (click here for link), dated June 2015, and found that it allows for a development project proponent to “propose project-specific onsite measures to ensure that critical coarse sediment can be discharged to receiving waters, such that there is no net impact to the receiving water” (see section 6.2.4.2 of Model BMP Design Manual). The Final Model BMP Design Manual does not require avoidance of critical coarse sediment areas as the only option for Priority Development Projects and is in compliance with Provision E.3.c.(2)(b) of the Regional MS4 Permit.</u></p> <p><u>Please also see response to comment E3c2-1.</u></p> <p><u>No changes were made to the Tentative Order as a result of this comment.</u></p>	

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E3d-1 PROVISION E.3.d: BMP Design Manual Update		
	<p>COMMENT: <i>Request for additional time for San Diego County Copermittees to update and implement their BMP Design Manuals.</i></p> <p>The San Diego County Copermittees and the County of San Diego requested revisions to Provision E.3.d which would grant Copermittees up to 180 days to incorporate corrections to the definition of Priority Development Projects under Provision E.3.b.(1) and begin implementing their BMP Design Manuals.</p>	<p>San Diego County Copermittees County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that more time is needed to update and implement the BMP Design Manuals. In a letter dated May 29, 2015, the San Diego Water Board forewarned the San Diego County Copermittees that changes to the Priority Development Project categories were necessary in order to clearly reflect the intended definitions. At that time, the San Diego Water Board provided the language that is now proposed in the Tentative Order.</p> <p>The Copermittees have had ample opportunity to initiate and complete their local adoption processes in order to meet the BMP Design Manual implementation date. For this reason, more time is not necessary and a delay in BMP Design Manual implementation is not warranted. However, the San Diego Water Board will use Provision F.2.b.(4) to grant the Copermittees an extra 90 days beyond the original BMP Design Manual implementation date of December 24, 2015 to complete the update and begin implementation of the BMP Design Manual. Please also see response to comment F2b-1.</p>	

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November 4, 2015 / Revised November 10, 2015

E3d-2 PROVISION E.3.d: BMP Design Manual Update		
	<p>COMMENT: <i>Request for revisions to clarify the effective date of the BMP Design Manual is the same as the implementation date.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested revisions to Provision E.3.d to include language that clarifies the effective date of the BMP Design Manual is the same as when the BMP Design Manual begins implementation.</p>	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the proposed modification would clarify the San Diego Water Board's intention. Provision E.3.d has been modified as follows:</p> <p style="margin-left: 40px;">a. Each Copermittee must update its BMP Design Manual pursuant to Provision F.2.b. Until the Copermittee has updated its BMP Design Manual pursuant to Provision F.2.b.(1), the Copermittee must continue implementing its current BMP Design Manual. The Copermittee must implement the updated BMP Design Manual within 180 days following completion of the update pursuant to Provision F.2.b.(1), unless directed otherwise by the San Diego Water Board Executive Officer. <u>The date the BMP Design Manual is implemented is the "effective date" of the BMP Design Manual.</u></p>	

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E3e1-1 PROVISION E.3.e.(1): Structural BMP Approval and Verification Process	
<p>COMMENT: <i>Requests for revisions to the proposed language to define projects with prior lawful approval under Provision E.3.e.(1)(a).</i></p> <p>The City of San Diego requested a revision to the proposed language to define projects with prior lawful approval to also include projects that have received development approvals.</p> <p>San Diego Coastkeeper and Coastal Environmental Rights Foundation requested revisions that would allow a Priority Development Project to proceed under previous land development requirements only if the Copermittee demonstrates that, among other required conditions, construction activities on the Priority Development Project commenced prior to the effective date of the new BMP Design Manual and that all approvals and permits necessary to complete the implementation of the initially approved design also be obtained prior to the effective date of the new BMP Design Manual.</p>	<p>City of San Diego San Diego Coastkeeper and Coastal Environmental Rights Foundation</p>
<p>RESPONSE: The San Diego Water Board disagrees that any changes are needed to the proposed language in Provision E.3.e.(1)(a). Specifically, reliance on issuance of a development approval alone is not consistent with the San Diego Water Board’s goal of requiring most new Priority Development Projects to be subject to the requirements in the new BMP Design Manual unless limited conditions are met. Nor is it consistent with the <i>Avco</i> line of cases, which requires commencement of construction and substantial reliance on the permit as the determining factors for grandfathering projects under previous development requirements. Reliance on issuance of a development approval alone may also result in many fewer Priority Development Projects implementing projects based on the new BMP Design Manual required in Order No. R9-2013-0001 as amended.</p> <p>With regard to the Environmental Groups’ comment, the San Diego Water Board believes it is appropriate for the Copermittees to have the ability to allow a Priority Development Project meeting all other required conditions in Provision E.3.e.(1)(a) to proceed under previous land use development requirements if the Copermittee demonstrates that construction activities have commenced before, or within 180 days after, the effective date of the new BMP Design Manual. The Board believes it is appropriate to include a grace period of 180 days after the effective date of the BMP Design Manual in order to provide certainty of requirements for projects in process, and allow for scheduling of construction activities under optimal conditions, such as outside of nesting season, or during the dry season, when impacts from storm water runoff are minimized. And, as long as development projects complete construction of all phases in substantial conformity with the approved design, which includes storm water pollutant control and hydromodification management BMPs approved by the</p>	

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E3e1-1 PROVISION E.3.e.(1): Structural BMP Approval and Verification Process	
<p>municipality, it is appropriate that prior lawful approval (the ability to proceed with development in accordance with the previous land use development requirements) remain valid during issuance of subsequent permits that may be necessary to complete the project within 5 years after the effective date of the new BMP Design Manual. Five years is an appropriate and reasonable period of time for those projects meeting all other conditions to be completed.</p> <p>No changes were made to the Tentative Order as a result of these comments.</p>	

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E4-1	PROVISION E.4: Construction Management	
	<p>COMMENT: <i>Request for revisions to construction management program inventory and tracking requirements.</i></p> <p>The City of San Diego requested that Provisions E.4.b and E.4.d.(3) be combined because both sections contain information that needs to be collected, inventoried, and tracked.</p>	City of San Diego
	<p>RESPONSE: The San Diego Water Board considered the requested revision and determined that it was not necessary. The Copermittees can implement an inventory and tracking system that may be utilized to manage the data that are collected and needed to fulfill the requirements of both Provision E.4.b and E.4.d.(3).</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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E5c-1	PROVISION E.5.c: Existing Development Inspections	
	<p>COMMENT: <i>Request to include an optional third-party certification program into the existing development inspection provisions.</i></p> <p>Section F.3.b.(4)(c) of Order No. R9-2010-0016 allowed the Riverside County Copermittees the option to propose a third-party certification program for commercial and industrial inspection programs, subject to San Diego Water Board Executive Officer acceptance. The Riverside County Copermittees noted that a similar provision does not exist in the Tentative Order, and requested inclusion of this option in the Regional MS4 Permit.</p>	Riverside County Copermittees
	<p>RESPONSE: At this time the San Diego Water Board does not support the inclusion of a third-party certification program as part of the existing development inspection provisions.</p> <p>The San Diego Water Board has conducted audits of several Copermittees' existing development and post construction BMP inspection programs in the San Diego Region that utilize self certifications or third-party certifications to verify the proper operation and maintenance of post construction BMPs. These audits have found such programs have not adequately confirmed that BMPs are being properly operated and maintained so they are effective at removing pollutants in storm water discharges from commercial and industrial sites to the MEP.</p> <p>However, the Regional MS4 Permit provides the Copermittees significant flexibility in the implementation of their existing development inspection programs, and does not preclude the use of third-party certification programs during years where inspections are not necessarily required. If the Copermittees can develop a third-party certification program that can demonstrate such a program can be implemented in a way that will ensure BMPs are being properly operated and maintained so they are effective at removing pollutants in storm water discharges from commercial and industrial sites to the MEP, the San Diego Water Board may reconsider including such an option into the Regional MS4 Permit during the renewal process anticipated to begin in early 2018.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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F2b-1 PROVISION F.2.b: BMP Design Manual Updates		
	<p>COMMENT: <i>Request for revisions to clarify the effective date of the BMP Design Manual.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested revisions to Provision F.2.b.(4) to include language that clarifies the effective date of the BMP Design Manual if an update to the BMP Design Manual is required.</p>	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board agrees that the proposed modification to the text in Provision F.2.b.(4) would clarify that the BMP Design Manual effective date is no later than 90 days after the San Diego Water Board adopts amendments to Provisions E.3.a-d. Provision F.2.b.(4) will be modified as follows:</p> <p style="margin-left: 40px;">(4) If the San Diego Water Board amends Provisions E.3.a-d during the permit term but after the Copermittee has completed the update pursuant to Provision F.2.b.(1), the Copermittee must revise its BMP Design Manual to incorporate the amended Provision E.3.a-d requirements as soon as possible but not later than 90 days after the date the San Diego Water Board adopts the amendments to Provisions E.3.a-d, unless otherwise directed by the San Diego Water Board Executive Officer. <u>Under these circumstances, the effective date of the BMP Design Manual is not later than 90 days after the date the San Diego Water Board adopts the amendments to Provisions E.3.a-d, unless otherwise directed by the San Diego Water Board Executive Officer.</u></p>	

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AttC-1 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
<p>COMMENT: <i>Request for revisions to definition of Construction Activities.</i></p> <p>The City of Escondido requested revisions to the definition of Construction Activities in Attachment C to the Regional MS4 Permit. The commenter requested the removal of the term “phase” from the definition because the term introduces artificial phases during a construction project that cannot be readily tracked.</p>	<p>City of Escondido</p>
<p>RESPONSE: The San Diego Water Board agrees that the revisions are appropriate.</p> <p>The definition of Construction Activities in Attachment C has been revised as follows:</p> <p>Construction Activities – Actions implemented during construction of development or redevelopment projects during the Preliminary <u>Tasks</u> Phase (including rough grading and/or disking, clearing and grubbing operations, or any soil disturbance prior to mass grading), Grading or Land Development Phase (including topography and slope reconfiguration, alluvium removals, canyon cleanouts, rock undercuts, keyway excavations, land form grading, and stockpiling of select material for capping operations), Streets and Utility <u>Installation</u> Phase (including excavation and street paving, lot grading, curbs, gutters and sidewalks, public utilities, public water facilities including fire hydrants, public sanitary sewer systems, storm sewer systems and/or other drainage improvements), or Vertical Construction Phase (including the build out of structures from foundations to roofing, including rough landscaping).</p>	

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AttC-2 ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
<p>COMMENT: <i>Request for revisions to definition of Redevelopment.</i></p> <p>The City of San Diego requested revisions to the definition of Redevelopment in Attachment C to the Regional MS4 Permit to improve the clarity of the definition.</p>	<p>City of San Diego</p>
<p>RESPONSE: The San Diego Water Board agrees that revisions would provide additional clarity in the definition of Redevelopment.</p> <p>The definition of Redevelopment in Attachment C has been revised as follows:</p> <p>Redevelopment – The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include <u>routine maintenance activities, such as</u> trenching and resurfacing associated with utility work; <u>pavement grinding</u>; resurfacing existing roadways; new sidewalks construction, pedestrian ramps, or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.</p>	

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AttE-1 ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
<p>COMMENT: <i>Request for revisions to TMDL requirements in Attachment E to the Regional MS4 Permit to allow independent jurisdictional compliance with TMDLs.</i></p> <p>The City of San Diego requested revisions to the TMDL requirements in Attachment E to the Regional MS4 Permit that would allow independent jurisdictional compliance instead of requiring all the Copermittees named as responsible to comply with the TMDL requirements.</p>	<p>City of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that modifications are needed to the language pertaining to TMDL compliance determination. The commenter correctly asserts that the intent of the language, and in fact, the intent of the Water Quality Improvement Plan concept, is that the Copermittees develop the Water Quality Improvement Plans collectively and evaluate water quality improvement strategies on a watershed basis. The San Diego Water Board recognizes that the Copermittees have no authority over other Copermittees to compel TMDL compliance; therefore, the Tentative Order has multiple compliance determination pathways available to each Copermittee to achieve compliance. The final compliance determination pathways are presented in Attachment E Specific (TMDL) Provisions 1.b.(3), 2.b.(3), 3.b.(3), 4.b.(3), 5.b.(3), 6.b.(3), and 7.b.(3). There are several compliance determination pathways that allow a Copermittee to demonstrate independent jurisdictional compliance with water quality based effluent limitations (WQBELs).</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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AttE6-1 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Requests for revisions to clarify that water bodies de-listed from the 303(d) List are not subject to the Beaches and Creeks TMDL requirements.</i></p> <p>The Orange County Copermittees requested revisions to the Beaches and Creeks Bacteria TMDLs requirements in Attachment E to state that specific water bodies or beach segments included in Table 6.0 that have been delisted from the 2008 Clean Water Act Section 303(d) List of Water Quality Impaired Segments are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.</p>	<p>Orange County Copermittees</p>
<p>RESPONSE: The San Diego Water Board disagrees that any revisions are necessary or appropriate. The Orange County Copermittees correctly state that the water bodies listed in Table 6.0 must be in compliance with the final TMDL compliance requirements (and WQBELs). If a water body or beach segment has been de-listed, then the MS4 discharge WQBELs and/or receiving water WQBELs should already be achieved, but the BMP WQBELs and the monitoring and assessment requirements are still required to be implemented to maintain the achievement of the MS4 discharge WQBELs and/or receiving water WQBELs in the de-listed water body or beach segment.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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AttE6-2 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
	<p>COMMENT: <i>Request for revisions to compliance dates for the Beaches and Creeks Bacteria TMDLs.</i></p> <p>The San Diego County Copermittees, the City of San Diego, and the County of San Diego requested that the compliance dates proposed to be added to Tables 6.1 and 6.4 be removed. The commenters assert that the compliance dates proposed to be added are inconsistent with the requirements of the Beaches and Creeks Bacteria TMDLs. The commenters also assert that the Beaches and Creeks Bacteria TMDLs do not require the development of a Bacteria Load Reduction Plan (BLRP) or Comprehensive Load Reduction Plan (CLRP) for segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments.</p>
	<p>San Diego County Copermittees City of San Diego County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that the addition of the compliance dates is inconsistent with the Beaches and Creeks Bacteria TMDLs requirements. The San Diego Water Board also disagrees that segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments are not required to develop a BLRP or CLRP.</p> <p>The compliance date for the Beaches and Creeks Bacteria TMDLs is specified on page 7-107 of the Basin Plan as follows:</p> <p><i>“Full implementation of the TMDLs for indicator bacteria shall be completed as soon as possible, but no later than 10 years from the effective date for both the dry weather and wet weather TMDLs, unless an alternative compliance schedule is approved as part of a Comprehensive Load Reduction Plan, as described in the following section. The effective date of these TMDLs is April 4, 2011.</i></p> <p><i>The San Diego Water Board will require the Phase I MS4s to submit Bacteria Load Reduction Plan (BLRPs) outlining the proposed BMP program that will be capable of achieving the necessary load reduction required to attain the bacteria TMDLs in the receiving water, acceptable to the Regional Board within 18 months after the effective date of these TMDLs....”</i></p> <p>Tables 7-53 and 7-54 on page 7-108 in Chapter 7 of the Basin Plan present the compliance schedules that apply if the Copermittees develop a BLRP. Page 7-109 of the Basin Plan describes the potential for the Copermittees to develop CLRPs. If the Copermittees choose to develop a CLRP, the compliance date and schedule for the Beaches and Creeks Bacteria TMDLs is specified on page 7-109 of the Basin Plan in Table 7-55 and as follows:</p>

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AttE6-2 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs

“...the dischargers may develop and submit a CLRP for all constituents of concern in lieu of the BLRP, and to propose an appropriately tailored alternative compliance schedule. Proposed alternative compliance schedules tailored under this provision may not extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs from the effective date”

Tables 6.1 and 6.4 were revised in the Tentative Order to be consistent with the compliance schedules of Tables 7-53, 7-54, and 7-55 of the Beaches and Creeks Bacteria TMDLs in the Basin Plan. Therefore, the addition of the compliance dates proposed to be added to Tables 6.1 and 6.4 are consistent with the requirements of the Beaches and Creeks Bacteria TMDLs.

As for the assertion that the Beaches and Creeks Bacteria TMDLs do not require BLRPs or CLRPs for segments of beaches or creeks de-listed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments, the commenters appear to be citing text from the TMDL Compliance Schedule section instead of the TMDL Implementation Plan section of the Beaches and Creeks Bacteria TMDLs. It is true that on page 7-107 of the Basin Plan, includes a statement that:

“For watersheds in Table 7-52 where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of the TMDLs.”

However, this statement is under the TMDL Compliance Schedule requirements and was only included to indicate that the San Diego Water Board would not require a BLRP or CLRP to be submitted within 18 months of the effective date. It was not intended to mean that a BLRP or CLRP would never be required. If the commenters look under the TMDL Implementation Plan requirements for Phase I MS4s, which begins on page 7-85 of the Basin Plan, there is no statement that a BLRP or CLRP will not be required for “watersheds ... where there are no longer any impairments listed on the 2008 303(d) List.” The TMDL Implementation Plan for Phase I MS4 does, however, state the following on page 7-86 of the Basin Plan:

“The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in receiving waters. The Phase I MS4s will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program capable of achieving the necessary load reductions required to attain the TMDLs in receiving waters, acceptable to the San Diego Water, within 18 months after the effective date of these TMDLs. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The BLRPs or CLRPs should be developed and

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AttE6-2 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs

incorporated as part of the Watershed Runoff Management Programs required under the Phase I MS4 NPDES requirements....”

The TMDL Implementation Plan requirements clearly state the BLRPs or CLRPs are required and do not have any exceptions. The TMDL Compliance Schedule requirements do allow an exception from submitting a BLRP or CLRP within 18 months of the effective date, but do not state that a BLRP or CLRP will never be required. Specific Provision 6.b.(2)(c)(i) is consistent with the TMDL Implementation Plan requirements in the Basin Plan by requiring a CLRP to be on a watershed scale and incorporated into the Water Quality Improvement Plans (i.e. Watershed Runoff Management Program), which includes a BMP implementation program capable of achieving the necessary load reductions required to attain the TMDLs in receiving waters for all the applicable Watershed Management Areas in Table 6.0. Table 6.0 lists all the beaches and areas included in the Beaches and Creeks Bacteria TMDLs from the Basin Plan. Please also see the response to comment AttE6-1.

However, the San Diego Water Board recognizes that Specific Provision 6.b.(2)(c)(i) only allows for the Copermitees to incorporate CLRPs into the Water Quality Improvement Plans. Therefore, to be consistent with the Beaches and Creeks Bacteria TMDLs, which allows for BLRPs to be developed and submitted, Specific Provision 6.b.(2)(c)(i) has been revised as follows:

- (i) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 6.0 must incorporate the Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) required to be developed pursuant to Resolution No. R9-2010-0001.

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AttE6-3 ATTACHMENT E.6: Beaches and Creeks Bacteria TMDLs	
<p>COMMENT: <i>Request for revisions to clarify that compliance with receiving water limitations in the Beaches and Creek Bacteria TMDLs will be assessed at the compliance points identified in the TMDL Monitoring Plan.</i></p> <p>The County of San Diego requested revisions to the Beaches and Creeks Bacteria TMDLs requirements to specify that compliance with receiving water limitations can be determined at the compliance points identified in the TMDL Monitoring Plans that are included in the Water Quality Improvement Plans.</p>	<p>County of San Diego</p>
<p>RESPONSE: The San Diego Water Board disagrees that the revision is necessary. The Beaches and Creeks Bacteria TMDLs interim and final compliance determination requirements includes a pathway that allows the Copermittees to demonstrate that there are no exceedances of the final (or interim) receiving water limitations in the receiving water <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i></p> <p>The Specific Monitoring and Assessment Requirements of the Beaches and Creeks Bacteria TMDLs specifies the locations where monitoring is required to determine compliance. For beaches, the required monitoring locations are <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> For creeks, the monitoring locations are required to be at or near the mouth and one or more locations upstream of the mouth, both of which should be <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> If the receiving waters are not exceeding the final (or interim) receiving water limitations expressed as exceedance frequencies at the required receiving water monitoring locations, then the Copermittees have demonstrated compliance with the receiving water WQBELs <i>“at, or downstream of the Responsible Copermittee’s MS4 outfalls.”</i> If, however, there are exceedances at a receiving water monitoring location, then the upstream Copermittees will need to demonstrate compliance with another compliance determination pathway.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

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AttE7-1 ATTACHMENT E.7: Los Penasquitos Lagoon Sediment TMDL		
	<p>COMMENT: <i>Request for revisions to incorporate a land use-based compliance pathway into the Los Penasquitos Lagoon Sediment TMDL.</i></p> <p>The County of San Diego requested revisions to the Total Maximum Daily Load for Sediment in Los Penasquitos Lagoon (Los Penasquitos Sediment TMDL) in Attachment E to incorporate a land use-based compliance pathway.</p>	<p>County of San Diego</p>
	<p>RESPONSE: The San Diego Water Board disagrees that changes are needed to accommodate a land use-based compliance pathway for the Los Penasquitos Lagoon Sediment TMDL.</p> <p>The commenter states that if the land use has not changed significantly from the 1970s baseline, the timeframe at which water quality standards in the lagoon were met, then the sediment loads from the Copermittee’s MS4s are expected to be approximately the same as the baseline levels and within the amount allowed in the wasteload allocation. The San Diego Water Board agrees that under this scenario in which land use has not changed significantly, the sediment levels would be approximately the same as baseline levels. If this is confirmed through water quality monitoring, then the Copermittee has likely met its portion of the final effluent limit described in Provision 7.b.(2)(b) and has achieved compliance. For this reason, changes to the TMDL compliance pathways are not needed or warranted.</p> <p>No changes were made to the Tentative Order as a result of this comment.</p>	

ATTACHMENT

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See: California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Region (Basin Plan)* at

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FEB 14 2012

Eric Becker
Senior Water Resources Control Engineer
Southern Watershed Unit
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Becker:

The following are EPA Region 9's comments on the pre-notice draft MS4 permit for the municipal separate storm sewer systems (MS4s) located within the jurisdiction of the San Diego Regional Board, which was forwarded to us for review on January 31, 2012.

Given the relatively short time period provided for review of the permit (which is complex), our review has been somewhat cursory, and we may have additional comments on future drafts. We would also like to arrange a conference call with you to discuss our comments before the public notice version of the permit is released.

A. *Permit Expiration Date*

As you know, NPDES regulations at 40 CFR 122.46 require that the term of a permit not exceed five years. Consistent with this requirement, the draft MS4 permit (Attachment B.2.b) provides that the permit would expire five years after the adoption date. However, we are somewhat concerned about the discussion in Finding D.12 for the permit suggesting that the Board may administratively extend (deliberately) the permit for a term of perhaps 10 years or more. NPDES regulations at 40 CFR 122.6 provide that a permit may be administratively extended beyond its expiration date, but only a last resort, for example, when time and resource constraints do not allow timely permit reissuance.

We note that certain permittees in Orange and Riverside Counties, which are currently covered under alternate MS4 permits, would be covered by the new regional MS4 permit when their existing MS4 permits expire (in 2014 for Orange County and 2015 for Riverside County). We also understand that the Board would like to not reissue the regional permit until the Orange and Riverside County permittees have been covered for five years (i.e., in 2020 for Riverside County). Unfortunately, we believe this would

not be possible in light of the five-year limit for the term of a permit at 40 CFR 122.46. As such, we recommend the permit expire (and be reissued) in 2017 for all permittees.

B. *Low Impact Development (LID) Requirements*

We generally support the proposed LID requirements (beginning on page 61) in the draft permit. However, during our conference call, it would be helpful to confirm our understanding of the proposed approach for biofiltration. Presumably biofiltration is considered "a flow through LID treatment control BMP." Rather than specifying design parameters, the permit provides that these systems should be designed for an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP. This seems appropriate to us. Also, if biofiltration does not result in meeting the retention standard, offsite mitigation is apparently required (but we would like to confirm our understanding of this matter).

We also support the proposed hydromodification provisions which appear to be condensed from the approach used in the San Diego Regional Board's Orange County permit (no Hydromodification Control Plan preparation). During our conference call, we would be interested in hearing what considerations the San Diego Board gave to these new hydromodification provisions.

The proposed permit (page 68) provides for alternative (i.e., offsite) projects only in the event of technical infeasibility onsite. In other Southern California areas (and as noted in the statewide MS4 workgroup) we are hearing the suggestion that offsite projects should be allowed to facilitate groundwater recharge. We are wondering if that has been suggested within the San Diego Board's jurisdiction, and whether the San Diego Board would be interested in allowing this under its permit. We believe the idea has merit given the importance of groundwater recharge in Southern California.

Finally, it appears there may be a typographical error on page 72 concerning the beginning date for the project inventories. For example, you may have intended January 2012 rather than 2002 for the San Diego inventory.

C. *Total Maximum Daily Loads (TMDLs)*

We generally support the Board's approach for incorporation of applicable TMDL requirements into the MS4 permit. We are pleased to see applicable wasteload allocations (WLAs) widely incorporated as numeric effluent limits since this approach will enhance enforceability and will most clearly ensure consistency with the WLAs. However, it appears section A.3.b needs some revision; we would suggest the following: "Pollutants in the discharges must be reduced to comply with any effluent limitations expressed as part of any ~~water~~ WQBELs required . . ."

We have not had sufficient time to fully review the requirements of the applicable TMDLs, and the provisions of Attachment E of the permit to ensure all requirements of the TMDLs have been accurately incorporated into the permit. Thus far however, we did note the following:

- For the Rainbow Creek nutrient TMDL, the interim compliance deadlines are included, but not the final compliance deadline (December 31, 2021).

- For the Shelter Island Yacht Basin copper TMDL, the proposed permit provides the permittee may monitor "any (of) its MS4 outfalls. . ." Rather than allowing "any" outfall, we suggest requiring the permittee to monitor a representative outfall in the Shelter Island drainage area (there are 9 outfalls total according to the TMDL) or at least an outfall which drains similar land uses as found in the Shelter Island drainage area.

There are also certain provisions which are somewhat unclear which we would like to discuss further for clarification:

- Section A.2.b; we are unclear on the intent of the prohibition of exceedances of "receiving water limitations expressed as part of any WQBELs . . ." We believe you mean WLAs, established as a strict numeric WQBEL or not, should not exceed receiving WQS. But we would like clarity on this provision.

- In Attachment E (page E-7, section 3.b.1(a)), we are unclear whether the WQBEL is the same as the receiving water limit; we need to have clear language so there is no confusion on what is a WQBEL, whether it is a receiving water limit or an effluent limit.

Regarding monitoring requirements, we believe it is important to specify a minimum number of samples to be collected at the designated MS4 outfalls, and in the receiving water. For example, appropriate requirements were included for the Beaches and Creeks Bacteria TMDL (page E-31, section 2.a.(i)) and similar requirements should be included for all the TMDLs.

Finally, for TMDLs that are approved during the term of the permit, we suggest a provision similar to that recently proposed by the Central Coast Regional Board for the reissuance of the Salinas MS4 permit (section O of permit No. CA0049981) available at: http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2012/feb/Item_21/attachment_6.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. This provision will expedite compliance with the WLAs by the permittees.

D. Water Quality Improvement Plan Review

The draft permit (section F.1, page 90) requires the development and submittal of Water Quality Improvement Plans by co-permittees no later than 12 months after permit adoption. Although the Plans would be made available for review in the Regional Clearinghouse, we believe this may be insufficient to ensure an adequate opportunity for public participation consistent with 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. In addition to providing the Plans in the Clearinghouse, we recommend the Board actively solicit public comment (e.g., provide a 30-day public comment period when a Plan is submitted) and then respond to the comments as appropriate.

We also note that section D.2.d of the permit provides for alternate watershed monitoring requirements in certain circumstances. For the reasons noted above, the permit (or the fact sheet) should clarify that the Board will solicit public comment prior to the approval of alternate plans of this nature.

E. Inspection Program for Construction Sites

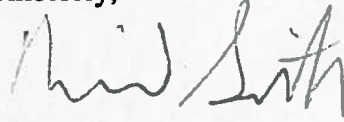
We are still reviewing the proposed requirements for construction site management (section E.4). However, we do have certain concerns with the proposed requirements for construction site inspections in section D.4.d. The proposed permit would require inspections "at an appropriate frequency" for the construction project and its phase. The existing San Diego MS4 permit, however, includes specific frequencies for the inspections (such as once/two weeks, or once/month); other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County also commonly include specific inspection frequencies. As you know, we are trying to improve the enforceability of MS4 permits and imprecise terms such as "an appropriate frequency" may make enforcement of the permit more difficult. This is an issue we would like to discuss further during our conference call.

F. Action Levels

Section C of the draft permit includes what are termed "action levels" for certain pollutants. However, there do not appear to be any clear actions associated with these concentrations which would be required to be implemented by the permittees (unlike, for example, the San Diego Board's 2009 MS4 permit for Orange County which requires additional BMPs when an action level is exceeded). For the current draft of the regional permit, the values in section C might be more appropriately termed "assessment levels." If the Board's intent is to use the values as a basis for requiring upgrades to the water quality improvement plans, this should be made clearer in the permit.

We appreciate the opportunity to provide our views on the pre-notice draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or John Tinger of the NPDES Permits Office at (415) 972-3519.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is written in a cursive style with a large initial "D" and "S".

David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT

17



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 11 2013

Wayne Chui
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Chui:

The following are EPA Region 9's comments on the draft permit for the municipal separate storm sewer system (MS4) located within the jurisdiction of the San Diego Regional Board, which the Board released for public comment on October 31, 2012. We also provided comments on an early draft of this permit in a letter to the Board dated February 14, 2012. For the most part, we are pleased with the latest version of the permit and we commend the Board and its staff for their extensive efforts in developing this draft permit. We also offer the following comments for the Board's consideration:

A. *Total Maximum Daily Loads (TMDLs)*

In our February 14, 2012 letter, we also generally supported the Board's approach for incorporation of applicable TMDL requirements into the permit, i.e., incorporation of applicable wasteload allocations (WLAs) as numeric effluent limits. We urge the Board to retain this approach in the final permit as well since it will enhance enforceability and will most clearly ensure consistency with the WLAs.

Our February 14, 2012 letter had also suggested revisions of certain provisions of the early draft permit related to TMDLs; the October 31, 2012 draft permit has been substantially revised from the early draft and many of our early comments have been addressed. However, as discussed below, we still have certain concerns whether the monitoring requirements of the October 31, 2012 draft permit would be adequate to ensure compliance with the TMDLs.

Sections II.D.1 and 2 set forth the receiving water monitoring and MS4 outfall monitoring requirements of the draft permit. In general, a monitoring program would be developed and conducted by the permittees to assess the impacts of the discharges and the effectiveness of the Water Quality Improvement Plans (WQIPs), focusing on the highest priority water quality conditions. Compliance with applicable WLAs from TMDLs would be one of several competing priorities in selecting monitoring locations in the receiving waters and at MS4 outfalls.

Attachment E to the draft permit requires monitoring at MS4 outfalls or receiving water locations, but the locations to be monitored are not fully specified. Although TMDL compliance would presumably receive a high ranking in setting the monitoring program priorities, it is still not clear that appropriate monitoring locations would necessarily be selected to measure compliance with WLAs. As such, we recommend that Section II.D of the permit clarify that notwithstanding other monitoring priorities, at a minimum, appropriate monitoring locations must be selected to ensure compliance with all applicable WLAs and associated effluent limitations. The permit should specify that a mix of receiving water and representative end-of-pipe monitoring locations must be selected to ensure that the monitoring data collected will be sufficient to determine compliance with effluent limitations based on WLAs and to determine whether individual copermitees have caused or contributed to observed in-stream noncompliance. The permit should provide that the parties that develop and submit for Regional Board review a monitoring plan for a WQIP agree to the use of monitoring plan results for purposes of compliance determination.

Section II.D.2.c.(2) of the draft permit also requires monitoring at an “appropriate” frequency for the post-transitional period; the transitional monitoring program (Section II.D.2.a.(3)) would require twice/year monitoring during the wet season. We recommend the permit clarify the minimum monitoring frequency for the post-transitional period and suggest maintaining the twice/year frequency.

Attachment E also describes the specific provisions for TMDLs adopted and approved that are applicable to this tentative order. We note that a few of the compliance requirements provided in an existing TMDL were not included in this tentative order. We recommend that all applicable TMDL WLAs and compliance endpoints be included in Attachment E. For instance, the TMDL for Indicator Bacteria Project I – Twenty Beaches and Creeks in San Diego Region (including Tecolote Creek), provided both concentration-based and mass-based TMDLs. All identified TMDL WLAs and endpoints should be included in Attachment E to prevent confusion with the WLA requirements described and adopted in the TMDL.

Provision B.6 identifies the WQIP submittal, updates and implementation. Paragraph 3 under this Provision should clarify that the intent of all monitoring and assessment is to improve our evaluation of the waterbodies’ conditions, including the 303(d) listed impaired waterbodies. We recommend paragraph 3 under Provision B.6 be modified to the following:

“All State identified impaired waterbodies within the Watershed Management Area should be placed on the 303(d) List as required under CWA Section 303(d) and 40 CFR §130.7(b)(4)). However, in specific cases supported by robust analytical documentation the implementation of the Water Quality Improvement Plans may demonstrate that TMDLs are not necessary for identified impaired waterbodies within the Watershed Management Area if the analytical record demonstrates that technology-based effluent limitations required by the CWA, more stringent effluent

limitations required by state, local, or federal authority, and/or other pollution control requirements (e.g., best management practices) required by local, state or federal authority are together stringent enough to implement applicable water quality standards associated with the waterbody impairment causes within a reasonable period of time.”

Finally, we reiterate our suggestion from the February 14, 2012 letter that a provision be added to the draft permit to address TMDLs approved during the term of the permit; we had suggested a provision similar to section O of the 2012 MS4 permit for the City of Salinas (NPDES permit No. CA0049981) available at: http://www.ci.salinas.ca.us/services/maintenance/pdf/NPDES_Permit.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. Such a provision would expedite compliance with the WLAs by the permittees.

B. Low Impact Development (LID) Requirements

In our February 14, 2012 letter, we generally supported the LID provisions of the early draft permit, and we continue to largely support the proposed LID requirements of the October 31, 2012 draft permit. The proposed requirements in the October 31, 2012 draft (beginning on page 78) are also similar to the requirements in other recent California MS4 permits such as those for Los Angeles and Orange Counties. As you know, Region 9 is encouraging the Boards to include measurable requirements in MS4 permits to enhance clarity and enforceability of the permits. We are pleased to see the inclusion of the measurable requirement for onsite management of the runoff from the 85% storm similar to other recent permits. However, we also note that Section II.E.3.c.(1)(a)(ii) of the October 31, 2012 draft permit provides a new alternative of retaining the volume (determined by modeling) that would be retained under natural, undeveloped conditions. We are concerned that this option may create uncertainty and provide opportunities for subjective analyses that would be resource intensive and difficult to review. For this reason, and for consistency with other recent California MS4 permits, we recommend that Section II.E.3.c.(1)(a)(ii) of the proposed permit be removed. However, if this provision is retained, the permit and fact sheet should fully clarify that undeveloped conditions refer to natural conditions prior to any anthropogenic impacts.

We did raise a couple of questions regarding LID in our February 14, 2012 letter which we believe have been adequately addressed in the latest draft. We had been unclear concerning requirements related to biofiltration; the October 31, 2012 permit has been restructured in a way which clarifies the questions we had raised.

We had also suggested that the Board may want to consider off-site water supply augmentation projects as an acceptable alternative when onsite stormwater management is not feasible. Several recent studies have highlighted the many benefits (such as energy

savings) of increased stormwater infiltration for groundwater recharge. We note such a provision has been added to the draft permit, and we support this provision.

C. *Water Quality Improvement Plan Review*

In our February 14, 2012 letter, we had expressed concern whether the public would have an adequate opportunity to review draft WQIPs consistent with the 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. We are pleased to see the draft permit (section F) and the fact sheet have been revised to clarify that the Board would be soliciting public comment concerning draft WQIPs submitted to the Board for approval during the term of the permit.

The fact sheet and the permit also describe the WQIPs as dynamic and evolving documents which are likely to be updated and modified over time in accordance with the iterative process. Although permittees must solicit public input in developing proposed updates that are submitted to the Board, it does not appear that public comment would necessarily be solicited concerning Board action in approving, disapproving or revising proposed updates; we suggest that an opportunity be provided for public comment on such Board actions similar to that provided when the original WQIPs are submitted.

D. *Prescriptive BMP Requirements*

In our February 14, 2012 letter, we expressed concern that the early draft permit would only require inspections of construction sites "at an appropriate frequency"; this provision has also been included in the October 31, 2012 draft permit. We noted in our comments that the existing San Diego MS4 permit includes specific frequencies for the inspections (such as once/two weeks, or once/month), as do other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County. As noted earlier, we are trying to improve the clarity and enforceability of MS4 permits and terms such as "an appropriate frequency" reduce clarity and make enforcement of the permit more difficult. Such provisions may also be insufficient to ensure compliance with the Clean Water Act's requirement to reduce pollutants in the discharges to the maximum extent practicable (MEP). We recommend that the permit specify the required frequency of construction site inspections.

Certain other provisions of the October 31, 2012 draft permit are also less prescriptive than the existing permit, such as the storm drain maintenance requirements and the inspection requirements for commercial and industrial facilities. We recognize that the Board is attempting to improve the environmental outcome of its stormwater program by shifting the focus from prescriptive BMPs to prescriptive water quality results, and we concur with the increased emphasis on water quality results. However, we are not convinced that the prescriptive BMPs of the existing permit are as significant

a burden as portrayed in the draft fact sheet, and we suggest they be retained for the most part in the new permit to ensure permit clarity, enforceability and compliance with MEP. To the extent the requirements for numeric water quality goals in the WQIPs would also ensure compliance with MEP, such requirements would be acceptable.

We recommend the permit or fact sheet also clarify that the numeric water quality goals (and the schedule for attainment of the goals) in the draft WQIPs would become enforceable permit requirements once the Plans are approved by the Board. EPA's 1999 regulations for Phase II MS4s (64 FR 68722, December 8, 1999) required similar measurable goals for stormwater management programs and intended that "goals" would be enforceable permit requirements once approved. Further, a wide variety of measurable goals were intended to be considered including measurable BMPs and measurable water quality improvements.

E. Action Levels

In our February 14, 2012 letter, we expressed concern that there did not seem to be any clear actions which would be required on the part of permittees if an action level concentration were exceeded. Although the draft fact sheet of October 31, 2012 provides additional insight into the Board's intent, we still believe the clarity and enforceability of the permit would be enhanced by adding clearer provisions for acting upon action level exceedences to the permit similar to the Board's 2009 permit for Orange County.

Footnote 7 in the proposed permit notes that NALs are not intended to be enforceable limitations. Provision II.C.1.b.(2) also provides that some NALs may be based on WLAs established in TMDLs included in Attachment E of the permit. We believe the Board intends the WLAs to be enforceable permit requirements; as such, we recommend NALs not be based on the WLAs. Instead, enforceable effluent limitations should be incorporated that are consistent with and ensure effective implementation of WLAs.

F. Toxicity Testing

The toxicity testing monitoring provisions proposed in the draft permit should be brought up to date with those in MS4 permits recently issued by the State Water Board (Caltrans MS4) and the Los Angeles Regional Water Board (Los Angeles MS4). Following the approach in these permits, only chronic toxicity monitoring should be required and biological toxicity test endpoints should be analyzed using the Test of Significant Toxicity hypothesis testing approach. At minimum, the permit should be revised to reflect the following requirements: (1) monitoring for chronic toxicity in fresh or marine waters shall be estimated as specified in U.S. EPA's short-term chronic toxicity methods in the most recent edition of 40 CFR 136; and (2) for chronic toxicity test samples (either stormwater or non-stormwater), the in-stream waste concentration (IWC) is 100 percent to calculate either a pass or fail test sample result following Appendix A in

National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, June 2010). A pass result indicates no toxicity at the IWC. A fail result indicates toxicity at the IWC.

G. *Permit Expiration Date*

In our letter of February 14, 2012, we had expressed concern that the Board appeared to be considering a permit term longer than five years to accommodate the expiration dates of the current MS4 permits for Orange County and Riverside County. We noted such a provision would conflict with NPDES regulations at 40 CFR 122.46 which require that the term of a permit not exceed five years. We are pleased to see the proposed permit term has been revised to be consistent with this requirement.

We appreciate the opportunity to provide our views on the draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is fluid and cursive, with the first name "David" and last name "Smith" clearly distinguishable.

David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT

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MEETING

STATE OF CALIFORNIA

SAN DIEGO REGIONAL WATER QUALITY BOARD

PARTIAL TRANSCRIPT

SAN DIEGO REGIONAL

WATER QUALITY CONTROL BOARD

2375 NORTHSIDE DRIVE, SUITE 100

SAN DIEGO, CALIFORNIA

REPORTED BY: KASEY L. MOBLEY, CSR 13407

California Reporting, LLC

52 Longwood Drive

San Rafael, CA 94901

(415) 457-4417

1 APPEARANCES

2
3 BOARD MEMBERS:

- 4 Henry Abarbanel, Chair
5 Gary Strawn, Vice Chair
6 Betty Olson
7 Stefanie Warren
8 Eric Andersen
9 Tomas Morales

10
11
12 OTHER STAFF PRESENT:

- 13 David W. Gibson, Executive Officer
14 James G. Smith, Assistant Executive Officer
15 Catherine Hagan, Regional Board Attorney
16 Wayne Chiu, Water Resource Control Engineer
17 Christina Arias, Water Resource Control Engineer
18 Julie Chan, Supervising Engineering Geologist

1 NOVEMBER 18, 2015, SAN DIEGO, CALIFORNIA
2 9:03 A.M.
3
4 CHAIRMAN ABARBANEL: Good morning.
5 I'd like to call to order the regular meeting of
6 the San Diego Regional Water Quality Control Board
7 on November 18th, 2015.
8 May we have a roll call.
9 (Roll call done.)
10 CHAIRMAN ABARBANEL: The first item on
11 the agenda after being here is our public forum.
12 Anybody can address the Board on any issue that is
13 not on the agenda. So plenty of time to speak to
14 the agenda items as they arise, but very often,
15 the public has important and interesting things to
16 say that I didn't get -- manage to get on the
17 agenda.
18 Did anybody wish to speak to items not
19 on the agenda?
20 And you've given Gary a blue card or
21 whatever?
22 You've given him four?
23 JIM WHALEN: Yeah, that's how
24 entrenched it is.
25 CHAIRMAN ABARBANEL: Okay.

1 JIM WHALEN: Thank you very much. Is
2 this thing on?

3 Good morning, Mr. Chair, members of
4 the Board. My name is Jim Whalen of J. Whalen
5 Associates, 1660 Hotel Circle, here in Mission
6 Valley. I'm the president of J. Whalen
7 Associates, a land use consulting firm, and chair
8 of the Building associations Legislative
9 Committee.

10 I've been monitoring the progress of
11 the MS4 permit implications, and I'm concerned
12 that the biological consequences of reducing
13 runoff into certain water bodies, especially the
14 Otay River --

15 CHAIRMAN ABARBANEL: Excuse me. I
16 believe that is the subject of Item No. 11.

17 MR. WHALEN: We did talk to your
18 counsel about this is the greatest level of detail
19 you're going to get. I'm done in one second.

20 MS. HAGAN: Mr. Whalen is talking
21 about the water quality improvement plan process,
22 but he's not going to talk about any details of
23 the specific water quality improvement plan.

24 CHAIRMAN ABARBANEL: I'm sorry for
25 interrupting, but I --

1 MR. WHALEN: That's okay. We were
2 careful to make sure we talked to folks in
3 advance, to make sure we didn't --

4 CHAIRMAN ABARBANEL: Okay. You can
5 start from the beginning, but I think we know who
6 you are now.

7 MR. WHALEN: I think you do. I've
8 been monitoring the progress of the MS4 permit
9 implication, and I am concerned that the
10 consequences of reducing runoff into certain water
11 bodies for biological reasons may have been
12 overlooked during the permitting process, and I'm
13 simply requesting that the Executive Officer
14 Gibson schedule a public hearing on the San Diego
15 Bay Water Quality Improvement Plan to consider
16 this issue before the full Board. Thank you.
17 That's it.

18 CHAIRMAN ABARBANEL: Do you have
19 specific requests of the executive officer?

20 MR. WHALEN: Simply to calendar it.
21 We can't do specific requests. Simply to
22 calendar.

23 CHAIRMAN ABARBANEL: Okay.

24 Please. I wouldn't interrupt you.

25 TORY WALKER: Good morning, Chair and

1 board members. My name is Tory Walker. I'm at
2 2559 Vista de Palomar, Fallbrook, California. I'm
3 the principal of Tory R. Walker Engineering, a
4 water resources firm, and I prepared a hydro
5 modification study for the Otay River.

6 I believe the San Diego Bay Water
7 Quality Improvement Plan does not take into
8 account all the available science --

9 MS. HAGAN: Excuse me. You need to
10 limit this to no details whatsoever. I was under
11 the impression that folks would be asking for a
12 hearing, but getting into any details is not
13 appropriate today. That's a process for the water
14 quality improvement plan.

15 MR. WALKER: All right. Thank you.
16 So I would like it to be vetted at a public
17 hearing before the Board.

18 CHAIRMAN ABARBANEL: Is that enough
19 details?

20 BOARD MEMBER STRAWN: I think the next
21 one is Nick Dangus.

22 NICK DANGUS: Good morning, Chair,
23 Board members and Executive Officer. My name is
24 Nick Dangus, 1660 Hotel Circle North, J. Whalen
25 Associates, land use consultants.

1 I believe there are significant issues
2 with San Diego Bay Water Quality Improvement Plan,
3 and I request that Extensive Officer Gibson
4 schedule a public hearing before this Board to
5 address these issues.

6 Thank you.

7 BOARD MEMBER STRAWN: Mr. O'Connor?

8 JEFF O'CONNOR: Good morning Chair,
9 Board members and staff. My name is Jeff
10 O'Connor. I work for Home Fed Corporation in
11 Carlsbad. We have significant property holdings
12 in Otay Mesa. I've been working with staff over
13 the past several years over the storm water permit
14 and will continue to do so. We believe that San
15 Diego Bay Water Quality Improvement Plan has
16 unresolved issues and should be subject to a
17 public hearing before this Board.

18 Thank you.

19 BOARD MEMBER STRAWN: Next, Laura, I
20 have a card from somebody that says they want to
21 follow you, but I have your card for Item 11.

22 MS. HUNTER: I had to take my card out
23 because I was advised not to speak.

24 BOARD MEMBER STRAWN: That explains
25 the other mystery of what happened to your card.

1 Come up to the microphone. Identify
2 yourself.

3 BOARD MEMBER WARREN: Can I step down
4 before you go.

5 MS. HAGAN: The matter is a pending
6 matter. It's a 401 certification that's pending.
7 Ms. Hunter wanted to talk about some of the
8 details at the site, and it's not proper for this
9 forum, so I told her that.

10 CHAIRMAN ABARBANEL: Before we go on,
11 I want to ask Dave if the requests of the first
12 four speakers are sufficient for you to put
13 together a public forum that would meet their
14 various --

15 EXECUTIVE OFFICER GIBSON:
16 Mr. Chairman, members of the Board, good morning.

17 Their requests are sufficient for me
18 to look at the issues, the Watershed Water Quality
19 Improvement Plan for San Diego Bay, and to make a
20 determinate, as you have delegated me to do, as to
21 whether or not to schedule that, and I would do so
22 in conference with you, Mr. Chairman, and look at
23 the calendar when that would happen.

24 Optimistically, it would be into next
25 year, and I think there should be some concerns as

1 to certain aspects of the permit that would not
2 come into play until that happened.

3 So I think it would be best to look at
4 this issue and discuss it before making this
5 decision.

6 CHAIRMAN ABARBANEL: I wanted to
7 ensure the people who were present that it was
8 clear enough.

9
10 BOARD MEMBER MORALES: Out of
11 curiosity -- maybe we don't know yet -- is it
12 something that would be scheduled in a regular
13 meeting or.

14 CHAIRMAN ABARBANEL: Board Member
15 Morales, if we determine the best course of action
16 is to consider it, we would plan it for a
17 regularly scheduled Board meeting in 2016.

18 CHAIRMAN ABARBANEL: That would be
19 February?

20 EXECUTIVE OFFICER GIBSON: That would
21 be the earliest it could be.

22 CHAIRMAN ABARBANEL: Okay. Sorry for
23 keeping you waiting. I wanted to make sure --

24 MR. MODIANO: That's fine. Ed
25 Modiano, project coordinator for Chatham site, PRP

1 Group.

2 BOARD MEMBER WARREN: I need to recuse
3 myself if we're going to talk about the Chatham
4 site.

5 MR. MODIANO: We're not. Essentially,
6 we're here -- we have a humble relationship with
7 Escondido Neighbors United. I've always been
8 directed to attend these meetings in case the
9 Chatham site does come up. Apparently, Laura is
10 not going to be talking about the Chatham site, so
11 I remove my card.

12 MS. HUNTER: I put my card back in.
13 From now on, I'm going to put in a request to be
14 after Ed.

15 Anyway, I'm just going to be asking
16 for a request for a public hearing on the 401
17 certification for the Oak Creek development
18 project. Thank you.

19 CHAIRMAN ABARBANEL: Now, we've had
20 several public hearings here on that issue. Are
21 there additional issues that would merit having a
22 hearing of the Board, or would it be a separate
23 occasion?

24 EXECUTIVE OFFICER GIBSON: Mr.
25 Chairman, this concerns a water quality

1 certification under Section 401 that's a pending
2 project right now. I will confer with staff to
3 determine whether I should act on that
4 ministerially, as you have delegated me to do, or
5 if indeed it does rise to the occasion where the
6 Board should consider it.

7 As you know, I have two basic metrics
8 for making that determination, independent of
9 public forum. One is that the impacts are
10 significant, and the other is that there's
11 significant public interest.

12 We've heard perhaps two requests, if I
13 can interpret it that way, and I'll take that
14 under advisement.

15 CHAIRMAN ABARBANEL: Thank you.

16 Anyone else wish to speak on an item
17 that is not on the agenda?

18 Thank you. We will move on to Item 3.

19 (Minutes of Board meeting
20 approved.)

21 CHAIRMAN ABARBANEL: Move on to Item
22 No. 4, which are comments by the Board members.

23 I guess Fran is not with us today.

24 EXECUTIVE OFFICER GIBSON: Correct,
25 Mr. Chairman. She is attending a State Board

1 meeting today.

2 CHAIRMAN ABARBANEL: She will not have
3 any comments.

4 Board members and executive officer --
5 Board members have any comments, reports?

6 BOARD MEMBER WARREN: I just had a
7 question on the executive officer's report. On
8 Item No. 2, the public meeting at Magnolia
9 Elementary School, if we could take a few minutes
10 to share more details.

11 Is it our impression that the parents
12 and teachers are getting the answers that they
13 want, and they're feeling that they're in the
14 loop?

15 CHAIRMAN ABARBANEL: Thank you, Board
16 Member Warren. I will ask if Craig Carlisle or
17 Sean McClain is available -- or Julie Chan. I see
18 Julie is closer to the microphone.

19 Julie, would you please?

20 MS. CHAN: Hi. Julie Chan with the
21 Groundwater Protection Unit. I did attend the
22 meeting. I believe the parents and teachers of
23 the school are getting the information that
24 they're looking for, and another public meeting is
25 scheduled for January. DTSC presented -- the DTSC

1 schools group has installed a pilot remediation
2 system in one of the classrooms, and based on the
3 outcome of the pilot study, they will expand it to
4 the entire school.

5 Then we continue to work aggressively
6 with Amitech to get the groundwater cleaned up. I
7 would say the discussion at the meeting quickly
8 moved away from the school and to the residents'
9 down gradient of the plume. So at that meeting,
10 it was arranged that we would beef up our public
11 information plan, and since then, we met with
12 Amitech and directed them to prepare a public
13 information plan that deals with the residents not
14 just the school.

15 Are there any other questions?

16 BOARD MEMBER WARREN: Will you come
17 back to us and let us know how the January meeting
18 goes.

19 MS. CHAN: Absolutely.

20 CHAIRMAN ABARBANEL: Thank you.

21 BOARD MEMBER STRAWN: As you know, I
22 represent this Board on the San Diego River
23 Conservancy, and we had a really interesting
24 meeting here last week where we began to allocate
25 some of the Prop 1 money for various projects

1 along the San Diego River. The first increments
2 that's designated for the San Diego River will be
3 \$3 million out of a total of 17 for this
4 watershed. This is exclusive of the area-wide
5 money that's being administrated by Coastal
6 Keepers.

7 The three projects that were presented
8 are worthy of some discussion here. The first one
9 is Mass Park. The City has had a plan, been
10 working on a plan for several years to restore
11 that park. Under Prop 1, they added to that and
12 divided out a section that's going to specifically
13 restore -- I think it's about nine and a half
14 acres of repairing habitat, wetland restoration.

15 They're moving the old asphalt trail.
16 They're tearing that up and moving it back away
17 from the bank of the river, restoring that bank
18 and adding to the flood plan, replacing the trail
19 with a permeable surface. And they're planting
20 some native grasses and flowers. It's going to be
21 a really nice project.

22 I was particularly mindful of the idea
23 that that can be a good example of some of the
24 urban projects that can be done under Prop 1,
25 where they take some urban city parks and, at

1 least, modify them or add to them in such a way
2 we're also taking care of the watershed.

3 This particular park is surrounded by
4 a lot of high-density, low-income housing. All
5 those parking lots have drained down into the
6 park. So they're building a big bioswale, and
7 they take that and duct it into a gravel bed that
8 actually augments the playground. It will be a
9 big boulder field for the kids to play on when
10 it's dry, and it helps act as an attachment that
11 can recharge the groundwater.

12 The other project was the County of
13 San Diego had a trash removal pilot project. I
14 think it was 12 sites, and they're -- they worked
15 with some of the other cities in the state to look
16 at some of the other projects that are going on to
17 remove trash from the storm water. In these 12
18 sites, they'll put a high-tech catchment down in
19 the storm drain catchment area to filter out
20 anything bigger than a cigarette butt, or
21 including a cigarette butt, I guess.

22 Then they'll pick that up and analyze
23 it, and they're going to match this with some
24 public outreach and education BMPs to look at --
25 and volunteer cleanups to see how do you decide

1 where to put these things, what are you catching,
2 what are the big concerns, and how does this
3 physical trap work compared to the other
4 alternatives, which is volunteer cleanups and
5 education.

6 That one was particularly of interest
7 because the areas of interest are probably the
8 most low-income high-density urban areas that the
9 county's got responsibility for: out in Lakeside,
10 Bostonia, and I don't remember; a couple other
11 sites.

12 It's going to be an interesting
13 project. It wasn't a whole lot of money but we
14 would hope to expand there, and I think it's safe
15 to say that the impetece behind that is the new
16 State Board mandate on trash removal and going
17 forward with the idea that will probably become
18 incorporated in the MS4 at some future point.

19 So they're doing a pilot project that
20 I think can be beneficial to all the cities in our
21 area to look at methods of removing trash from the
22 storm water.

23 San Diego state put in a request to --
24 for watershed restoration along Alvarado Creek
25 adjacent to Interstate 8 and alongside the new

1 student housing areas in there. That's kind of a
2 bad area of the stream, so just the physical work
3 of clearing that out, removing some concrete and
4 invasive plants and improving that whole wetland
5 area and watershed is important from a flood
6 avoidance aspect, but the really cool part about
7 that project is Prop 1 has some serious mandates
8 in there that it's targeted for shovel-ready
9 dirt-moving projects, physical restoration
10 projects, and there's not a lot of allowance for
11 data collection and evaluations and studies of the
12 long-range effects. This particular project,
13 because it's sponsored by San Diego State, there's
14 a consortium of four or five professors and their
15 graduate students that doing water monitoring in
16 there, hydrology, absorption studies, bio
17 assessments, and I think they're already working
18 with Chad's team, if that's correct -- or we're
19 providing historical data in there.

20 So we should, in addition to fixing up
21 a bad part of that watershed, I think we're going
22 to gain a lot of data out of that and be useful in
23 evaluating and selecting future projects like
24 that.

25 The one thing at this -- going

1 forward, they've got the another half of that 3
2 million will probably come up in the next couple
3 months. One of those projects had to do with
4 irrigation in some of the urban ponds along the San
5 Diego river, to try to raise the DO levels. I had
6 previously asked that to be a future agenda item
7 and information item. I suggest we hold that in
8 abeyance a little bit until we see how this
9 project pans out. Maybe we can get a briefing on
10 what they're doing and how they expect it to work.
11 I want to tie that in with the rigging issue.

12 I've kind of segued into the next
13 agenda item. I'll leave it at that.

14 CHAIRMAN ABARBANEL: In a modest break
15 with tradition, the State Board has agreed to
16 consult with the regions on the disposition of the
17 resources that the State gives to the water boards
18 as a whole. And to discuss priorities, as seen by
19 the regions in consultation with the State Board.

20 That is going to happen three times in
21 three sessions during the coming year, 2016, and
22 the agreement was the chair and one other Board
23 member, as well as the executive officer, and, if
24 available, the assistant executive officer, be in
25 these discussions. We will have, in January, a

1 staff-and-Board-only discussion of how we will
2 present ourselves in that occasion. And we will
3 also have a public discussion of what is important
4 to the public that you would like us to bring
5 forward with discussion with the regions. That
6 will probably be in February.

7 Everything is open to discussion. I
8 have no idea what the experiment will result in,
9 but it's an opportunity for everybody, with
10 whatever views you hold on whatever issues are
11 important to you, to come forward and see what we
12 can do statewide.

13 In particular, cooperation with other
14 regions, I think, should be strongly encouraged.
15 We have many, many overlapping issues. Gary has
16 talked often about the homeless issue. It's a
17 complicated issue. It's not just the water
18 quality issue. It's an ethical issue. It's a
19 legal issue. We don't expect the State Board to
20 solve it. But the other regions, San Francisco
21 and L.A. in particular, probably have a much more
22 severe problem than we, so we'll talk to them
23 about a cooperative activity. There may be many,
24 many others. We don't in any way claim to have
25 figured them out yet.

1 Anyway, we're going to do that. I
2 think that's all I wanted to say for myself.

3 Dave, do you want to say anything more
4 about the executive officer's report?

5 EXECUTIVE OFFICER GIBSON: Thank you,
6 Mr. Chairman. I'd be very happy to. First of
7 all, are there any other questions on this month's
8 report? It is a rather extensive report.

9 Seeing none at this time, I have a
10 couple of updates for you. First of all, I'm
11 happy to announce that yesterday, the State Water
12 Resources Control Board did act on and approve the
13 basin plan amendment this Board adopted this year
14 for the on-site waste treatment system and
15 groundwater nitrate concentration water quality
16 objectives. That was approved. It's on its way
17 not to EPA and OAL. I think it will ultimately be
18 approved.

19 We have several new staff. Erica
20 Ryan.

21 Erica, will you please stand up.

22 Erica joins us as a water resource
23 control engineer, in the topic du jour. Welcome,
24 Erica. Baptism by fire, as they say -- or ice
25 water bucket, maybe.

1 We have two new scientific aids with
2 us Anayeli Picasso and Kate Moore. I know Kate is
3 at a class today.

4 Anayeli, are you here?

5 She's not here either. Probably hard
6 at work, no doubt.

7 Today the Commissioner Drusina is
8 convening with Commissioner Salmon at a Minute 320
9 Binational Corps Group, this afternoon, of course,
10 from 2:00 to 5:00 p.m. If it pleases the Board, I
11 will excuse myself at 1 o'clock to attend on its
12 behalf on that work group to discuss how we're
13 going to manage water quality, sediment and trash
14 bi-nationally under that treaty. That runs today
15 from 2:00 to 5:00 p.m., and I will update you
16 periodically in the executive officer's report.

17 The operations plan and budget for our
18 office for our next calendar year is under
19 preparation, and I plan to bring that to you for
20 discussion on the plan, the priorities, and indeed
21 our budget, as we did this year, in February of
22 next year.

23 Just a reminder, Item No. 10 on the
24 San Ysidro point of entry wastewater treatment and
25 reuse, we decided to have that with the recycled

1 wastewater item on December 16th at Padre Dam
2 Municipal Water District.

3 I'm very happy to also report, no
4 doubt you know, the City of San Diego approved the
5 significant rate increase, which is very important
6 for the recycled water efforts. So we will be
7 able to count on the City of San Diego to
8 participate in that very important discussion next
9 month.

10 That concludes my report unless there
11 are any follow-up questions.

12 Thank you very much.

13 CHAIRMAN ABARBANEL: Item 5 is the
14 opportunity for Board members to request or
15 suggest future agenda items. Gary is ahead of us
16 by an item or two.

17 Tom?

18 CHAIRMAN ABARBANEL: I have one, which
19 is kind of a recycled item. I'm pretty sure it
20 was in 2013 that the executive officer and Board
21 members made many visits to water districts,
22 municipalities, the three counties. I don't know
23 if we got to Riverside county.

24 BOARD MEMBER ANDERSON: We did indeed.
25 Mr. Strawn and I went several times.

1 CHAIRMAN ABARBANEL: Good. I would
2 like to suggest that we do that again in 2016.
3 It's been three years. We've had multiple very
4 significant permit modifications and new permits.

5 By the end of the day, we will
6 possibly -- I think it's time to go back and see
7 how things are going. I personally found those
8 visits to be very productive. And I had a sense
9 that the municipalities, surprised as they were
10 that we showed up on their doorstep, found it
11 productive.

12 EXECUTIVE OFFICER GIBSON: Yes,
13 indeed, Mr. Chairman, I agree. Debra Jane, our
14 outreach coordinator, and I are working up a plan
15 for next year for that. I am going to suggest
16 that we perhaps have several small group meetings
17 rather than individual meetings, as far as
18 practical for those, in Riverside and Orange
19 Counties to make use of our travel time and of
20 their time to be available. Small groups rather
21 than large groups and emphasis on discussion and
22 listening rather than lecturing.

23 CHAIRMAN ABARBANEL: That sounds like
24 a good start.

25 We're now going to move on to Item 6.

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(2016 meeting schedule
approved.)

CHAIRMAN ABARBANEL: We're going to
move on to the consent calendar. I have a
potential conflict of interest with Item No. 8.
I'm going to turn it over to Vice Chair Strawn and
step aside.

BOARD MEMBER STRAWN: First we ask if
there's any comments from the Board about the
consent item. If not, I would entertain a motion
to approve the consent calendar.

BOARD MEMBER MORALES: I move that we
approve the consent calendar for Items 7 through
9.

BOARD MEMBER STRAWN: We have a motion
and a second.

MS. HAGAN: May I ask a question? Mr.
Abarbanel, because you've stepped aside for Item
8, you're not participating in the vote for Items
7 or 9, either?

CHAIRMAN ABARBANEL: That is correct.

MS. HAGAN: Okay.

Ms. Warren?

BOARD MEMBER WARREN: Aye.

1 MS. HAGAN: Ms. Olson?

2 BOARD MEMBER OLSON: Aye.

3 MS. HAGAN: Mr. Anderson?

4 BOARD MEMBER ANDERSON: Aye.

5 MS. HAGAN: Mr. Morales?

6

7 BOARD MEMBER MORALES: Aye.

8 MS. HAGAN: Mr. Strawn?

9 BOARD MEMBER STRAWN: Aye.

10 MS. HAGAN: Chairman Abarbanel --

11 excuse me.

12 BOARD MEMBER STRAWN: Did you get your

13 coffee, Mr. Chairman?

14 EXECUTIVE OFFICER GIBSON: Mr. Vice

15 Chairman, if I could, I would like to thank and

16 acknowledge the U.S. Navy for coming today and

17 being prepared to engage on Item No. 9, had there

18 been any discussion. And I'd like to observe this

19 is a nice bookend in terms of our relationship

20 with the Navy as to how this permit was handled in

21 2008 and where we got today. Their assistance was

22 very much appreciated, as was the staff's

23 preparation for this item today, which was not

24 insignificant.

25 BOARD MEMBER STRAWN: Thank you. I'll

1 add it's good to see the Navy was here and
2 prepared, as usual. Thank you.

3 CHAIRMAN ABARBANEL: Okay. We'll now
4 move on to Item 11. As mentioned, Item 10 has
5 been postponed until next month.

6 I have a formal statement I will read:
7 Now is the time and place for a public hearing on
8 tentative order R92015-0100. If adopted, the
9 tentative order will amend Order NO. R92013 --
10 0001. The NPDES permit and waste discharge
11 requirements for discharges in municipal separate
12 storm sewer systems -- that's why we call them
13 "MS4" -- draining the watersheds within the San
14 Diego region, also known as Regional MS4.

15 The purpose of this hearing is for the
16 Board to hear testimony and comments about the
17 tentative order from staff, the co-electees and
18 their elected officials, the environmental
19 organizations, the building industry and other
20 interested persons.

21 At this time, I want to allow any
22 Board member to make any disclosures if they have
23 received any ex parte communications or disclose
24 if they have a conflict of interest.

25 BOARD MEMBER WARREN: Thank you. I

1 will not be participating in this matter based on
2 work that my firm conducts.

3 CHAIRMAN ABARBANEL: All right. I do
4 want to clarify, this is a tentative order to
5 amend the existing permit, the regional MS4
6 permit. The regional MS4 permit was adopted after
7 two days of public hearing with extensive public
8 comment and testimony. The Board also held a
9 public hearing in February of this year to amend
10 the regional MS4 permit to incorporate
11 Copermittees. For the most part, the parties have
12 incorporated their comments from the 2013 comments
13 into this action. And the staff prepared
14 responsive comments that also incorporate the
15 Board's 2013 responses.

16 Given that, I want to make sure people
17 know that comments and responses to comments from
18 the initial adoption of the regional MS4 permit
19 from 2013 and the February amendment from this
20 year are part of the record, and they don't have
21 to reargue all the points they made earlier to
22 make them part of the record.

23 Procedures will be the following: The
24 Board will conduct this hearing in a relatively
25 informal matter. We have received several

1 advanced requests for blocks of presentation time,
2 which we plan to allow, and I will indicate at the
3 end of this formal presentation today. Although,
4 due to time constraints, we will not give Orange
5 County Copermittees all of the time they
6 requested, they will have time to address their
7 issues.

8 We will consider requests for more
9 time as the hearing moves forward. Interested
10 persons will generally have three minutes each.
11 As noted below, we have set a time for elected
12 officials to speak. Do we have any elected
13 officials that are here?

14 Then we will have a specific time for
15 that. Elected officials wishing to address the
16 Board, if so, at about 10 o'clock. It may happen
17 before that. Please don't leave.

18 We also received a request from Orange
19 County and Orange County Flood Control District to
20 ask clarifying questions of staff. We will
21 accommodate the request within their 30-minute
22 block of time.

23 If other parties want to ask questions
24 of staff or other parties, they may do so within
25 their time of allotment. If any speaker wants to

1 reserve time for closing arguments or rebuttal,
2 they should indicate the request at the beginning
3 of their presentation.

4 As always, Board members and counsel
5 can ask questions at any time. Questions and
6 responses won't count against the speaker's time.

7 Finishing up the formal structure, if
8 you haven't already, all persons wishing to the
9 address the Board must fill out a speaker card.

10 Either color?

11 We're colorblind as to the cards
12 today. Speaker cards are available on the table
13 at the back of the room. And as a reminder, if
14 you're using an electronic presentation, be sure
15 to give the board's executive assistant a copy so
16 it can be included in the record.

17 General order of presentations will be
18 as follows: The staff will begin in about 25
19 minutes.

20 Wayne, are you leading the staff
21 discussion?

22 MR. CHIU: I am.

23 CHAIRMAN ABARBANEL: As the EPA could
24 not attend today, a staff member will speak, in
25 effect, in their place. Elected officials will

1 get three minutes each, and then we will move on
2 to Riverside County Copermittees, then Orange
3 County Copermittees. The cities of Laguna Beach
4 and Dana Point will have 20 minutes out of the San
5 Diego County time, and San Diego County will have
6 10 minutes. The Building Association will have 15
7 minutes. The Coast Keeper and Coast Environmental
8 Rights Foundation, 30 minutes, and additional
9 interested persons not associated with any of the
10 organizations will have three minutes each after
11 about 1 o'clock.

12 Somewhere in there, we are likely to
13 need a lunch break, and at about 10:30 or so,
14 we'll also have a biological break.

15 MS. HAGAN: Mr. Chair, I want to
16 clarify. I may have misheard you. The San Diego
17 County Copermittees have 20 minutes. I think you
18 might have said 10.

19 CHAIRMAN ABARBANEL: I thought 10
20 minutes of their time went to Laguna Beach and
21 Dana Point.

22 MS. HAGAN: And then they have the
23 remaining 20.

24 CHAIRMAN ABARBANEL: All right.
25 Apologies to the County of San Diego.

1 Each person who was planning to
2 testify at this hearing will need to take the same
3 oath that you will take if you were in a court of
4 law.

5 Each person testifying shall begin by
6 stating his or her name and affiliation and that
7 they have taken the oath.

8 All persons who may testify at this
9 hearing, please stand and raise your right hand.

10 Do you swear that the testimony you
11 will provide is true and correct. If you do, say
12 "I do."

13 (Simultaneous I do.)

14 CHAIRMAN ABARBANEL: Thank you very
15 much. We actually don't have an option. Maybe we
16 should.

17 Okay. With all of that formal stuff
18 over, we will turn this over to staff who will
19 have approximately 25 minutes.

20 Please come in and have a seat. As
21 long as Wayne is standing there's at least one
22 seat.

23 MR. CHIU: Feel free to take my seat.
24 I'll leave the room after this.

25 BOARD MEMBER STRAWN: For your

1 information, I will have the time there.

2 MR. CHIU: You're only going to give
3 me only 25 minutes?

4 BOARD MEMBER STRAWN: I just want you
5 to be able to know how you're doing.

6 MR. CHIU: Okay.

7 Good morning, Chair Abarbanel, members
8 of the Board. My name is Wayne Chiu. I'm a water
9 resource control engineer in the storm water
10 management unit, and on the regional MS4 permit
11 team.

12 On the team with me are Christina
13 Arias -- she's not here right now. She'll come
14 back shortly. Our newest member, Erica Ryan, and,
15 of course, our supervisor, Laurie Walsh.

16 Today we bring to you for your
17 consideration, tentative order No. R9-2015-0100,
18 an order amending the regional MS4 permit to
19 incorporate the Riverside County Copermittees, and
20 the last piece in an effort that began in 2011 to
21 cover all the Copermittees in the San Diego region
22 under one MS4 permit.

23 At this time, I'd like to enter the
24 files into the record. Before I go over what
25 you'll be considering today, I'd like to go over

1 where we came from to get here.

2 To start, let's review what the
3 regional MS4 permit is regulating. "MS4" is short
4 for municipal separate storm sewer system. It's a
5 mouthful. For most people, the only part of the
6 MS4 they see are the roads, the curbs and gutters
7 and the storm drain inlets. But the storm water
8 and the liquids and materials that go into these
9 storm drain inlets contain pollutants that
10 discharge into creeks, streams and rivers. Those
11 discharges can have a significant impact on the
12 physical, biological and chemical integrity of
13 those waters. Like the trash, that can have -- or
14 an impact on the chemical and biological integrity
15 of the water in the Tijuana River watershed or the
16 impacts that hydro modification can have on these
17 creeks in Temecula and Murrieta in Riverside
18 County.

19 These creeks, streams and rivers
20 convey and transport the pollutants to downstream
21 water bodies like reservoirs, lakes, estuaries and
22 the ocean. And those pollutants can also have a
23 significant impact on the physical, biological and
24 chemical integrity of the downstream water bodies,
25 which impacts the quality of those downstream

1 waters for our use and the environment's health.

2 Now, because these pollutants in the
3 discharges from the MS4s are recognized as a
4 significant source of pollutants, the Federal
5 Clean Water Act requires that the discharges be
6 regulated under the National Pollutant Discharge
7 Elimination.

8 So MS4 discharges are regulated by an
9 NPS permit, and in California, the state water
10 board and regional water boards issue NPS permits
11 for MS4 discharges. In the San Diego region,
12 we've been issuing MS4 NPS permits since 1990.

13 So here's an overview of our region:
14 Our region consists of a large watershed that
15 drains the western part of San Diego county, the
16 southern part of Orange County and the
17 southwestern part of Riverside County. The areas
18 in yellow are areas with the highest
19 concentrations of developed areas and MS4s. Red
20 shows the water bodies that have been identified
21 as impaired by pollutants like bacteria, heavy
22 metals, pesticides and trash, among others.

23 As you can see, most of these impaired
24 water bodies are located within or downstream of
25 these developed areas, where there is the highest

1 concentration of MS4 discharges.

2 So there's a strong link between
3 discharges from the MS4s and the impaired water in
4 our region. The MS4 permitting program is one of
5 our most important regulatory programs to address
6 a significant source of pollutants causing our
7 contributing to these impairments.

8 Beginning in 1990, the San Diego Water
9 Board began issuing MS4 permits, which were based
10 on county and political boundaries. MS4 permits
11 are issued on five-year terms and are supposed to
12 be renewed every five years. The last MS4
13 permits, based on the political boundaries, were
14 the fourth term MS4 permits issued between 2007
15 and 2010.

16 After the renewal of the fourth term
17 Riverside County MS4 permit in November of 2010,
18 we are about to begin the cycle again with renewal
19 of the fifth term of San Diego County MS4 permits.
20 However, we decided at that time it was time to
21 try a new approach to regulating MS4 discharges
22 and water equality improvements faster.

23 Around the time the fourth term
24 Riverside County MS4 permit was being completed,
25 the San Diego Water Board staff started forming

1 its practical vision. During the formation of our
2 practical vision, as an organization, we realized
3 we were only focused on the work we were doing
4 today, like the numbers of inspections we had to
5 do, the numbers of reports we had to review or the
6 number of permits we had to issue, but not really
7 knowing if those actions were going to result in
8 improvements to water quality.

9 So our practical vision focuses our
10 work on water outcomes. We want to achieve
11 through our actions. We want to utilize our
12 resources in the best way possible to improve
13 water quality where it's needed most. We want all
14 the monitoring in our region to be coordinated to
15 allow us to better assess the conditions in our
16 receiving waters, in the most cost-effect possible
17 way for us. We want to recover lost and degraded
18 streams, wetlands and riparian habitats. We want
19 sustainable local water supply, and we want to
20 reach out and better communicate with public about
21 the water quality in our regions so people
22 understand improving water quality improves our
23 future. We believe if we can achieve these
24 outcomes, we will have healthy waters and healthy
25 people.

1 So while we were forming that
2 practical vision, we began the process of
3 developing the regional MS4 permit. The regional
4 MS4 permit is the embodiment of our practical
5 vision. We shifted the MS4 paradigm from
6 requiring implementation of actions like minimum
7 numbers of inspections and miles of streets swept.

8 On a jurisdictional scale, to
9 prioritize water quality conditions of concern,
10 require the coordination and implementation
11 strategies on a watershed scale to achieve
12 outcomes that will improve water quality. By
13 threat to obtain areas that are sources of
14 pollutants with BMPs that can remove those
15 pollutants before they get in our waters or
16 restoring and rehabilitating channels and
17 habitats, or implementing projects that can
18 capture storm water to be used as a local water
19 supply resource.

20 And finally, the watershed base
21 monitoring assessment program to determine if the
22 strategies are working to improve water quality
23 over time. This paradigm shift was supported by
24 San Diego County, Orange County and Riverside
25 County Copermittees, as well as the environmental

1 counsel.

2 To transition from regulating MS4
3 discharges primarily on a jurisdictional scale,
4 under three separate MS4 permits based on county
5 and political boundaries, we began the paradigm
6 shift in May 2013, we got another regional MS4
7 permit, which superceded the fourth term San Diego
8 County MS4 permit.

9 Next, the Board amended the regional
10 MS4 permit in February of this year to the extend
11 coverage to the Orange County Copermittees and
12 superceded their regional MS4 permit. Today,
13 we're proposing to amend the MS4 permit to extend
14 coverage to the Riverside County Copermittees and
15 supercede their fourth term MS4 permit and
16 complete the process of having one MS4 discharges
17 in the San Diego region.

18 This is a portion of Riverside county
19 and the San Diego region that will be covered by
20 the MS4 permit if you adopt the tentative order
21 today. This map is provided, Supporting Document
22 No. 2, in your agenda package.

23 There are four incorporated cities in
24 Riverside County with all or part of their
25 boundaries within the San Diego region: Temecula,

1 Murrieta, Wildomar and Menifee.

2 The remaining area in blue is the
3 unincorporated area in our region. And the creeks
4 shown in that dark blue area are operated and
5 maintained by the Riverside County Flood Control
6 and Water Conservation District.

7 The cities of Wildomar, Murrieta and
8 Menifee also have parts of their jurisdictions in
9 the Santa Ana region, regulated by our neighboring
10 water boards to the north.

11 During the development of the fourth
12 term MS4 permit, the San Diego Water Board and the
13 Santa Ana Water Board entered into an agreement to
14 have a single water board regulate the MS4
15 discharges in the cities. So the tentative order
16 will continue that agreement for the cities of
17 Murrieta and Wildomar to be regulated by the San
18 Diego Water Board, and for the city of Menifee to
19 be regulated by the Santa Ana Water Board. So
20 this is the part of the Menifee that will be
21 regulated by the Santa Ana region, and these are
22 the parts that will be regulated by San Diego
23 Water Board.

24 At the Orange County amendment
25 adoption hearing in February, the Board requested

1 we investigate two issues and consider including
2 them as amendments to the regional MS4 permit
3 during the proceedings to extend coverage to the
4 Riverside County Copermittees.

5 The first issue was language that will
6 define when a development project will be subject
7 to the development planning requirements for the
8 regional MS4 permit or the fourth term MS4
9 permits, known as prior lawful approval language.

10 The second issue was including an
11 alternative compliance pathway option that a
12 Copermittee could implement to be deemed in
13 compliance with water prohibitions and limitations
14 in the permit, even if they are actually not in
15 compliance. We held three workshops to discuss
16 these issues of key stakeholders, the
17 Copermittees, the environmental community and the
18 development community.

19 Board Member Olson attended the
20 workshop in April. Board Member Morales attended
21 the workshop in May, and in June, we provided a
22 final draft for the proposed amendments to the
23 stakeholders.

24 In May, the Riverside County
25 Copermittees submitted their reported waste

1 discharge to apply for renewal of their fourth
2 term MS4 permit. We released the tentative order
3 on July 31st for public comment, and that
4 tentative order and attachments are included as
5 supporting Document 1 in your agenda package.

6 The comment period closed September 14
7 for a 40 day comment period. We received 18
8 comment letters before the end of the comment
9 period, included as supporting document three in
10 your agenda package, and one late comment letter
11 which we provided in your supplemental package as
12 supporting document 11. We released a response to
13 comments report and errata sheet on November four,
14 included as supporting documents four and five in
15 your agenda package, and we released a revised
16 responses to comments report and revised errata
17 sheet on November 10 provided in your supplemental
18 agenda package as supporting documents 12 and 13.

19 Today we are ready for you to consider
20 options of the tentative order. When we released
21 the tentative order in July, the proposed
22 amendments to the MS4 permit can be categorized in
23 five areas. The primary reason for the tentative
24 order was to amend the regional MS4 permits to
25 include the Riverside County Copermittees as well

1 as continuing the agreement to allow the cities of
2 measure yet, which will do mar and men fee to be
3 regulated by one single water board. The
4 tentative order also proposes to include the prior
5 lawful approval language and alternative
6 compliance pathway option, developed as a result
7 of the public workshops we conducted, and I'll
8 discuss those in a little more detail, and finally
9 we amendment to see make corrections updates and
10 clarifications in the permit, which I'll summarize
11 later for you.

12 So let's start with the prior lawful
13 approval language. This language was requested by
14 the San Diego Copermittees and the development
15 community. We discussed this topic at length it
16 at the public workshops everyone freeze the permit
17 language should provide a clear understanding for
18 when a development project should be subject to
19 the development requirements of the regional MS4
20 permit. The project that meets the conditions of
21 prior lawful approval would not be subject to the
22 conditions of the regional MS4 permit but would be
23 allowed to implement the development requirements
24 of the fourth term MS4 permit.

25 After we released the tentative order

1 in July, we received two comment letters about
2 this issue. The City of San Diego supported
3 inclusion of the language but requested a
4 significant change that would remove the
5 requirement for the commencement of construction
6 activities as a condition for a project to have
7 prior lawful approval.

8 San Diego Coast Keeper and the Coastal
9 Environmental Rights Foundation expressed some
10 reservations with the language, and they also
11 requested some significant changes which would
12 remove prior lawful approval for projects that had
13 not begun construction activities -- or have --
14 for projects that have begun construction
15 activities after the effective date of the BMP
16 design manual and also require a development
17 project to have all approvals and permits in hand
18 to complete a project prior to the effective date.
19 We doesn't receive any comments from the
20 development community on this.

21 After carefully considering the
22 comments, we decided the conditions for the
23 project to have prior lawful approval developed
24 from the public workshops were reasonable and the
25 language was clear and easy to enforce, so we

1 didn't make any changes

2 Next I'll cover the proposed

3 alternative compliance pathway options. This

4 issue is related to an optional compliance pathway

5 that would allow a key to be deemed in compliance

6 with the receiving water prohibitions and

7 limitations of the permit. This is not part of

8 the offsite alternative compliance program that is

9 applicable to development projects; it's part of a

10 completely different discussion. Now, at this

11 point in time the Copermittees are not in

12 compliance with the receiving water prohibitions

13 and limitations and the or at least nobody thinks

14 they are. San Diego County, Riverside County and

15 Orange County Copermittees have repeatedly

16 requested the inclusion of an alternative

17 compliance pathway option they can implement to be

18 deemed in compliance of the receiving water

19 prohibitions and limitations. And even if they

20 are actually not in compliance with those

21 prohibitions and limitations. In contrast, the

22 the environmental community strongly opposes the

23 alternative compliance pathway because their

24 concern that it removes the potential for

25 enforcement for existing violations of receiving

1 water prohibitions. The version of the
2 alternative compliance pathway was considered by
3 this board at the may 2013 regional MS4 permit
4 adoption hearing. At the Orange County adoption
5 hearing, amendment adoption hearing, the board was
6 very interested in adding the optional compliance
7 pathway to the permit but agreed the issue
8 required additional discussion before it could be
9 included, so we thoroughly discussed topic at the
10 public workshops held in April, May and June of
11 this year with the Copermittees and the
12 environmental community.

13 At the workshops, the discussions
14 began based on the version of the optional
15 compliance pathway that was considered in May
16 2013. At the workshop, the Copermittees strongly
17 supported incorporating the optional compliance
18 pathway, but also wanted compliance during the
19 pathway process as well as more language that
20 would clearly state they were in compliance with
21 receiving water prohibitions and limitations.

22 At the workshop, the environmental
23 community was strongly opposed to putting the
24 optional compliance pathway in the permit, but for
25 discussion, if it had to be included, they wanted

1 provisions that clearly specified when a
2 Copermittee was no longer in compliance and they
3 were strongly opposed to the pathway preparation
4 process because they believe that compliance
5 during the preparation process would remove the
6 intention to propose a rigorous and comprehensive
7 alternative optional compliance pathway.

8 Based on the information we received
9 at the workshops, we chose to include the optional
10 compliance pathway into the regional MS4 permit
11 but not to include compliance during the
12 preparation process. As it so happens, on June
13 15th, the state water board adopted an order,
14 2015-00075, a presidential order which directs all
15 the regional water boards to consider including an
16 optional compliance pathway in all MS4 permits
17 going forward.

18 Now, if a regional water board chooses
19 not to include an optional compliance pathway,
20 then they would have to provide findings in the
21 permit that support not including it. If a
22 regional water board chooses to include an
23 optional compliance pathway in the permit, then
24 the optional compliance pathway is expected
25 incorporate certain principals in the order.

1 Fortunately the requirements of the regional MS4
2 permit and the optional compliance pathway option
3 we developed as a result of those public workshops
4 are consistent with the state water board's order
5 and incorporates the seven principals. The fact
6 sheet, which is attachment two to the tentative
7 order provided as supporting document one in your
8 agenda package have the requirements of the
9 regional MS4 permit and the optional compliance
10 pathway that incorporated seven principles of the
11 state water board's order starting on page F60 on
12 the fact sheet.

13 On this topic we received the most
14 written comments. We received comments from the
15 San Diego county, Orange County and Riverside
16 County Copermittees as groups as well as from
17 several individual Copermittees. The Copermittees
18 requested several modifications that, generally,
19 from our point of view, affect the rigor and
20 transparency of the alternative compliance pathway
21 options and would make the conditions much easier
22 to be able to have the privilege of being deemed
23 in compliance with the receiving water
24 prohibitions and limitations.

25 In particular, the Copermittees

1 requested a reduction in the number of milestones
2 that were required to be proposed for the
3 alternative compliance pathway schedules from one
4 milestone per year until a numeric goal is
5 achieved to just one or two milestones in a
6 five-year permit term. And they requested
7 language that would deem them to be in compliance
8 during the pathway preparation process.

9 The environmental community, again,
10 objected to the inclusion of the alternative
11 compliance pathway and asserted there were several
12 legal issues as well as the inconsistencies with
13 the state water board order that justified the
14 removal of the alternative compliance pathway
15 option from the regional MS4 permit.

16 There were no comments from the
17 development community.

18 So after carefully considering the
19 comments, they made a few minor modifications to
20 the alternative compliance pathway, but the most
21 significant change was reducing the number of
22 annual milestones required to be included in the
23 alternative compliance pathway schedules from one
24 milestone per year until a final numeric goal was
25 achieved, which we agreed was difficult to project

1 for 10 or 20 years, to just having five annual
2 milestones per permit term, to be revised and
3 updated with each permit term.

4 Now, the tentative order also includes
5 several amendments, corrections, updates, and
6 clarifications to the permit language.

7 CHAIRMAN ABARBANEL: Will you review
8 as well as you can the thought process of the
9 State Board in requiring alternative compliance
10 pathways?

11 MR. CHIU: Well, okay. The State
12 Board's order doesn't actually require us to have
13 an alternative compliance pathway. It requires
14 that we consider including an alternative
15 compliance pathway into the permit. Now, it is a
16 very strong encouragement that we include it in
17 the permit, and that's why, if we don't include it
18 in the permit, we have to provide good reason for
19 not including it in the permit. That's why we
20 have to provide findings in the permit that say
21 this is why we are not including it in the permit.

22 Now, on the flip side, for reasons
23 including it in the permit, I think they --
24 there's a recognition that -- it's unlikely that
25 the dischargers are going to be able to achieve

1 within our limitations within a five-year period,
2 and there's a recognition that it's probably going
3 to take multiple permit terms in order to get to
4 that end point.

5 But, you know, I think they wanted to
6 have some fairly rigorous and controlled process
7 in which the regional boards can oversee
8 implementation of some sort of process that will
9 provide some assurance that we can achieve those
10 limitations within a limited period of time, not
11 an unknown period of time.

12 EXECUTIVE OFFICER GIBSON: Mr. Chair,
13 if I could also offer a point of view another way
14 of looking, I think, at the state board's approach
15 at this is putting some meat on the bones of the
16 process the State Board set out in 1998 and 1999
17 for achieving water quality objectives through the
18 municipal separate storm sewer system permits and
19 program. That process was open-ended. It had not
20 been exactly clear the across the spectrum of the
21 environmental advocates and municipalities exactly
22 how the process was to be structured, where it
23 starts and stops, et cetera. Our approach in this
24 region permit is for that order and the order
25 itself I believe is to put structure to that

1 iterative process and to identify a particular
2 target or goals and achieve those.

3 In this case, with the alternative
4 compliance, we would be looking at all of the
5 outstanding water quality objectives that are not
6 being met that we have impaired water bodies for.
7 It's an option. Not every watershed or
8 municipality may take that approach, but that is
9 the basis for the State Board's approach in the
10 regional permit itself.

11 CHAIRMAN ABARBANEL: What are the
12 impediments for achieving those water quality
13 objectives in a five-year period?

14 EXECUTIVE OFFICER GIBSON: Mr.
15 Chairman, I think you will hear there are many
16 reasons why those are hard impediments. Number
17 one will be cost.

18 CHAIRMAN ABARBANEL: So there's no --
19 it doesn't violate the laws of physics?

20 EXECUTIVE OFFICER GIBSON: Not being a
21 physicist --

22 CHAIRMAN ABARBANEL: They don't have
23 to invent new physical laws in order to make
24 miracles happen. It's a matter of implementing
25 what they know how to do?

1 EXECUTIVE OFFICER GIBSON: It is a
2 question of technology and function.

3 BOARD MEMBER MORALES: Maybe to put it
4 in different terms, it's not a matter of
5 impossibility, it's impracticability.

6 EXECUTIVE OFFICER GIBSON: I am nodding
7 my head in agreement.

8 CHAIRMAN ABARBANEL: Well, you
9 mentioned technology. If we are unable to
10 implement something that remediates the water
11 quality issue, then it doesn't matter how much
12 money we spend on it, it's not possible. It may
13 be possible in 50 years with different equipment,
14 I don't know. Is that a kind of technical issue?

15 EXECUTIVE OFFICER GIBSON: I think
16 that's pushing it out to the edge of the envelope,
17 Mr. Chairman. I do think it's practical for us to
18 achieve our water quality objectives. In some
19 cases you may want to consider how those
20 objectives have been set historically in the basin
21 plan, and our permitting approach allows us and
22 the Copermittees to address that question while
23 working on the attainable goals.

24 The alternative compliance is an
25 option wherein, perhaps, a particular watershed or

1 with a particular storm water Copermittee, we
2 might actually be able to define the process for
3 getting there, know we've gotten there, and be
4 able to do so in such a way as to merit the
5 significant increase of the costs among one or
6 more Copermittees to achieve that.

7 And as a evaluation or approach for
8 that, municipalities would like to see some
9 assurance that they would not be held in violation
10 of water quality objectives while they are
11 undertaking that effort both in terms of the
12 implementation of the plan, which will certainly
13 take many years in some cases, and the development
14 of that plan, as you will hear testimony today,
15 what they want in terms of assurances on those.

16 I will simply point out in summation
17 that this issue has been with us for over 25
18 years. The federal regulations were issued in
19 1990, and if there was any ambiguity about the
20 obligation to comply with water quality
21 objectives, those were erased in late 1990s,
22 certainly with state board's order of 9801 to
23 9805.

24 Going forward, we have significantly
25 improved our capacity to manage our storm water

1 systems, far above and beyond what they were 15
2 years ago. It's now taking those tools and
3 applying them in the watershed and obtaining those
4 goals we are here to talk about today again.

5 Moving forward with that in a
6 practical way is our next step, whether or not the
7 Board considers the alternative compliance, you
8 have significant testimony on that, and I will be
9 glad to provide a recommendation during the course
10 of the day, but I'd invite you to hear the
11 testimony first.

12 CHAIRMAN ABARBANEL: I have one more
13 question.

14 EXECUTIVE OFFICER GIBSON: I hope that
15 I am not stealing Mr. Chiu's thunder for the rest
16 of his presentation.

17 CHAIRMAN ABARBANEL: Repetition will
18 not be harmful.

19 In assessing costs of achieving the
20 water quality, is the benefit of having achieved
21 it republic in many dimensions, including health
22 accounted for.

23 EXECUTIVE OFFICER GIBSON: At the
24 present time, I'm going to say that is an
25 imperfect science an incomplete science.

1 CHAIRMAN ABARBANEL: So I'll take that
2 as a no.

3 BOARD MEMBER OLSON: I'd like to ask
4 you, in terms of these milestones, how
5 prescriptive are they?

6 MR. CHIU: Certainly. The way it's
7 laid out in the permit, a milestone can be almost
8 anything. It's just a way to mark progress. So
9 it could be as simple as saying we need to develop
10 some sort of program. As part of that program, we
11 need to have, you know, a plan developed by
12 such-and-such time.

13 It could consist of some sort of
14 numeric interim goal for the final goal. It could
15 be implementation of a certain number of BMPs by a
16 certain date.

17 BOARD MEMBER OLSON: Can it be part of
18 a program that has alternatives?

19 MR. CHIU: The milestones are simply a
20 way for us and the public to be able to see what
21 the Copermittees are proposing to implement, if
22 they implement it within the time period they have
23 proposed, and then if that implementation is going
24 to move the needle towards achieving the final
25 goal.

1 BOARD MEMBER OLSON: Well, if you try
2 something, and it doesn't work, then is that
3 allowable, or do you try things that you're
4 guaranteed a success?

5 MR. CHIU: With the water quality
6 improvement plan, there is an aspect to have
7 adaptive management. If things change, you have
8 the ability to adaptively manage the program and
9 your milestones. That's why we changed the
10 milestones from, you know, one milestone per every
11 year until you achieve your goal, which, like I
12 said, 20 years down, you have 20 annual milestones
13 for one goal, it could get a little bit hard to
14 project 20 years out.

15 So we reduced it down to a five-year
16 period, which, then every five years, they
17 re-evaluate their milestones and then project the
18 milestones they plan to achieve within the next
19 five-year period.

20 BOARD MEMBER OLSON: If I understood
21 your language, they still need a milestone a year?

22 MR. CHIU: Correct.

23 BOARD MEMBER OLSON: So it's 20 in a
24 20-year period?

25 MR. CHIU: No, five. They only have

1 to propose five that they will try to achieve.

2 BOARD MEMBER OLSON: Five milestones?

3 MR. CHIU: Within a permit term.

4 BOARD MEMBER OLSON: So there's one
5 milestone per five years?

6 MR. CHIU: No, there's five milestones
7 per five years.

8 BOARD MEMBER OLSON: I'm confused.
9 Maybe you can repeat it one more time.

10 MR. CHIU: Initially, the language says
11 you must have an annual milestone for each annual
12 period until you achieve your numeric goal, and
13 you set up a numeric goal that you plan on
14 achieving, say, 25 years from now, you would have
15 to have 25 annual milestones. Now, what we
16 changed it to is instead of saying you have to
17 have 25 annual milestones, you have to have five
18 annual milestones and that final goal.

19 BOARD MEMBER OLSON: So you still have
20 to have -- I don't see what the difference is.

21 MR. CHIU: You start out with five, and
22 then as you learn something during those five,
23 when you submit your next five with your report of
24 waste discharge, you have learned something with
25 the first five, hopefully, and then you can

1 project your next five.

2 BOARD MEMBER OLSON: But you still
3 require the same number of milestones. What
4 you're saying is different in that you don't have
5 to lay out all 25 milestones.

6 MR. CHIU: Correct.

7 BOARD MEMBER OLSON: So -- I'm
8 struggling with this. So we are learning as we
9 go. So we have more knowledge at the end of five
10 years.

11 MR. CHIU: Hopefully.

12 BOARD MEMBER OLSON: Hopefully. So it
13 may be just as difficult to obtain an objective
14 after five years even with more knowledge, we may
15 realize there is more natural influence, and there
16 may be issues that we find out, too.

17 So what is the advantage -- I mean, I
18 can understand, but you could have three
19 milestones for five years. I'm not quite sure
20 exactly what the difference is except you think if
21 you have one milestone every two years, people
22 will not be working toward that milestone?

23 MR. CHIU: Well, I think, you know,
24 most of our permits -- I should say, the regional
25 permit has an annual reporting cycle, and I think

1 when it comes to showing progress, they want to
2 have something each year to show the Copermittee
3 or Copermittees as a group are implementing things
4 that are progress. That's why there is some
5 flexibility in what those annual milestones can
6 be, because we understand that implementing some
7 of these projects can take some time. But that
8 doesn't mean that, you know, we should wait five
9 years to hear whether or not it was completed.
10 There are interim steps in any project, so we
11 would like to see that there are ways to see how
12 things are moving along.

13 BOARD MEMBER OLSON: We all agree the
14 most important outcome is to achieve the
15 objective.

16 MR. CHIU: I agree.

17 BOARD MEMBER OLSON: And I want to
18 make sure that what we do doesn't become over
19 burdensome because you would like, and I would
20 like, and I believe the public would like money
21 spent to review the problems, and not hiring a
22 consultant to write a report that you have to --

23 MR. CHIU: I agree with that. That
24 speaks to the permit that we have tried to change
25 relative to previous permits. We have one annual

1 report per year now for the entire watershed
2 versus, you know, 50 annual reports that we had
3 the previous permits. So we reduced the amount of
4 paperwork that is necessary in order to record
5 everything.

6 BOARD MEMBER OLSON: Didn't you just
7 make a larger report? So in that report, you get
8 one big report instead of 60 little reports?

9 MR. CHIU: I would say we reduced the
10 areas that are unnecessary and increased the areas
11 that are necessary. So what we had in the past
12 was a lot of reports that were provided, a lot of
13 unnecessary information that was very difficult to
14 boil down into useful information. What we've
15 done with the reports now is we've reduced a lot
16 of the jurisdictional reporting requirements such
17 as a set of numbers and focused a lot of the
18 reporting on the monitoring data that is collected
19 and how the information from those assessments can
20 be used to improve the jurisdictional programs and
21 the strategies that are being implemented.

22 In the past we had a lot of
23 monitoring, but it wasn't really connected to the
24 programs and outcomes, and the programs and
25 outcomes were reporting a lot of the action they

1 were implementing without seeing how they would
2 improve water quality or contribute towards the
3 improvement of water quality.

4 We try to strike a balance between
5 what's necessary to report and what's unnecessary.

6 BOARD MEMBER OLSON: And we'll be
7 evaluating ourselves during this period?

8 MR. CHIU: Absolutely. This whole
9 process is intended to get everybody involved on
10 trying to achieve outcomes, not just the
11 dischargers, but us as well. We have to figure
12 out how to make our programs more effective, how
13 to make the permit more effective, because we have
14 permits in the past that, while they did move the
15 needle a little bit to improve water quality, it's
16 really hard for us to tell how or where they
17 improved or what actually did the improvements.
18 With what we've done with this permit, we've
19 really tried to change it so that we can figure
20 out what is working and what is not working, and
21 where things work, expand on that, where things
22 don't work, let's decrease that. It's trying to
23 maximize the efficiency that we all want with our
24 resources and our time. That's really what we're
25 trying to do with this permit.

1 The milestones are part of that. It's
2 hard to track how things are moving if you don't
3 have a way to track. That's partially why we
4 recognize that 25 years of milestones all upfront
5 is difficult. So let's break it down into smaller
6 chunks that are a little more manageable, but
7 let's really use that to think about how that can
8 help us in the future. That's why it's a
9 five-year process can spring from.

10

11 BOARD MEMBER MORALES: Staff, anybody
12 out in the audience, feel free to correct me if
13 you think I'm wrong, but in terms of what may have
14 been going through the State Board's head, I
15 wasn't in there, but as I see it, what they may
16 have been thinking is "Regional boards, we are not
17 going to micromanage you. An alternative
18 compliance pathway is something that you don't
19 have to have, but if you do not, it's incumbent
20 upon you to explain to us why you didn't include
21 one. We're not going to give you the benefit of
22 the doubt.

23 "On the other hand, if you get people
24 together and you adopt an alternative compliance
25 pathway, we'll give the benefit of the doubt."

1 That's kind of what I took from it.
2 So if anybody disagrees with that, please tell me
3 when you all speak.

4 MR. CHIU: I'll agree with you.

5 BOARD MEMBER STRAWN: I stopped the
6 clock when they started asking questions.

7 MR. CHIU: Thank you.

8 CHAIRMAN ABARBANEL: The Copermittees
9 that are going to be speaking later, I'm going to
10 ask you -- you heard staff's intentions of
11 reducing the paperwork load and making the
12 reporting more meaningful -- is that a good way to
13 describe it?

14 I would be very interested in hearing
15 your comment to that, specifically what you think
16 we put here, what we're putting together is going
17 to, in fact, reduce your paperwork load, or are we
18 still dumping some rather useless requirements
19 onto you?

20 We're not trying to kill trees or burn
21 up ink here. So please let us know your honest
22 belief on how we're doing. I think the proper
23 goal that Wayne stressed, let us know if we're
24 going in the right direction.

25 MR. CHIU: Can I make a comment on

1 that particular aspect?

2 At least for the last two years, we've
3 had these transitional jurisdictional runoff
4 management program annual reports. In the past,
5 we used to get 20 binders about that this thick
6 that we would have a hard time really
7 understanding what's in there. And now each
8 Copermittee has provided to us a two-page annual
9 report.

10 Going into the future -- we've also
11 been receiving their monitoring reports for the
12 watershed. And where we had one monitoring report
13 for the entire region, we now have eight
14 monitoring reports that are broken up by
15 watershed. So it's a little more watershed
16 specific. Like I said, we've increased some
17 reporting but decreased some reporting, as well.

18 CHAIRMAN ABARBANEL: It appears to me
19 you have about three minutes left.

20 MR. CHIU: That should be plenty.

21 BOARD MEMBER STRAWN: Take what you
22 need up to three minutes.

23 MR. CHIU: I will. I think I should
24 get three minutes and 14 seconds.

25 CHAIRMAN ABARBANEL: Take three

1 minutes and fifteen seconds.

2 MR. CHIU: Thank you for your
3 generosity.

4 BOARD MEMBER STRAWN: You're welcome.

5 MR. CHIU: The amendments included
6 several corrections, updates and clarifications to
7 the permit language. I'll summarize those for
8 you.

9 The amendments included revisions to
10 the requirements for two TMDLs in the permit. We
11 identified an inadvertent omission of an option to
12 develop a bacterial load reduction plan instead of
13 a comprehensive load reduction plan for the
14 beaches and creeks bacteria TMDLs. So we
15 corrected those TMDL requirements to allow for
16 bacteria load reduction plan to be developed. And
17 then we added some language to the Los Penasquitos
18 lagoon present TMDLs to help compliance.

19 We also amended the permit to update
20 the requirements for non-storm-water discharges to
21 reference a recently-adopted State Water Board
22 permit which regulates discharges from water line
23 flushing and water main breaks, and then, also,
24 change a reference to a San Diego Water Board
25 permit to a more recently adopted permit for

1 discharges for groundwater extraction.

2 And then we also added some language
3 to the fact sheet and response to comment to
4 clarify that if a Copermittee is in compliance
5 with the elicit discharge, detection and
6 elimination requirements, then the Copermittee
7 would be deemed in compliance with the effective
8 prohibition of non-storm-water discharges to the
9 MS4.

10 Finally, we will made a few amendments
11 to the development and planning requirements.
12 After the amendment to incorporate the Orange
13 County Copermittees into the MS4 permit, we
14 identified an inconsistency in the definition of
15 priority development projects compared to the
16 fourth term Orange County and Riverside County MS4
17 permits. So we corrected the definition to be
18 consistent with those previous definitions.

19 And as a result of those corrections,
20 we needed to include some clarifications on how a
21 Copermittee was expected to update their BMP
22 design manual with the corrected definitions.
23 After reviewing the written comments we received,
24 we decided a few initial revisions were warranted,
25 including language to clarify the effective date

1 of the BMP design manual and the definitions of
2 construction activities and redevelopment. So
3 those revisions we made in response to the
4 comments, along with the other revisions made to
5 the tentative order included in your revised
6 errata sheet provided in Supporting Document 13.

7 So to conclude, we recommend that you
8 adopt Tentative Order R9-2015-0100 with the
9 revised errata and Supporting Document 13 of the
10 MS4 permit to incorporate the Riverside County
11 Copermittees, as well as incorporate the prior
12 lawful approval language and the alternative
13 compliance pathway option.

14 BOARD MEMBER STRAWN: 26 seconds.

15 MR. CHIU: I'm available to answer any
16 questions you may have now.

17 BOARD MEMBER MORALES: No.

18 CHAIRMAN ABARBANEL: Thanks to
19 Mr. Chiu and staff for all of their hard work. I
20 really hope that the public -- I know a lot of you
21 that were part of the process will understand what
22 they've done. It's a lot of work that went into
23 this. A lot of effort.

24 MR. CHIU: Thank you.

25 Christina is going to read into the

1 record a statement from the EPA.

2 CHAIRMAN ABARBANEL: In a second.

3 Because of the time, and the mission of the Water
4 Board, physical, chemical, and biological
5 improvements, I'm going to declare a seven-minute
6 physical, chemical and biological break, after
7 which we will hear from elected officials and
8 Christina. Thank you.

9 (Recess taken.)

10 CHAIRMAN ABARBANEL: Are there any
11 elected officials who wish to speak to the
12 information discussion of Item 11?

13 BOARD MEMBER STRAWN: We have two
14 cards. Mr. Olvera, Mayor of Dana Point.

15 MR. OLVERA: Thank you very much.
16 Good morning. Carlos Olvera, Mayor of the City of
17 Dana Point, registered mechanical engineer with
18 the state of California.

19 We are trying to solve a problem, all
20 of us going in the same direction. I would ask
21 you not to give me a box wrench that you do not
22 know the size of the nut that has to be turned.
23 If you give me an adjustable wrench, I can use
24 that and get the job done. So give me the tools
25 that I can do and accomplish the job you want me

1 to do.

2 Thank you very much.

3 BOARD MEMBER STRAWN: Mr. Green.

4 MR. GREEN: South Coast Water
5 District, Bill Green.

6 BOARD MEMBER STRAWN: I recognize that
7 face.

8 MR. GREEN: Good morning, honorable
9 Board. It's good to be here once again.

10 As a resident of Dana Point, we live
11 in very water-conscious community, and we focus
12 and pride ourselves on water quality. To remind
13 the Board, I started surfing over 50 years ago. I
14 love clean water.

15 However, I have five unique
16 dimensional perspectives on water quality in
17 California. The first is, my vantage point was
18 from your position. As the governors of the
19 appointed water quality member of this Board,
20 serving with Gary and Eric to establish just
21 policies for the citizens of California.

22 My perspective has also been when the
23 USA EPA dictates to the state, CAL EPA lawyers
24 interprets them and renders opinions to the
25 regional staff, and the regional staff further

1 finds and recommends and interprets to your view
2 of the body to set policy and water quality
3 issues.

4 However, not all regions are setting
5 like policies. If not, why not are all regions
6 not the same in one state? Perhaps all counties
7 are not the same, as well, in one region. No
8 matter, it is a difficult question and a complex
9 answer.

10 As a second dimension, as a
11 supervisorial appointed commissioner to the
12 Riverside County Flood and Water Conservation
13 District, I have the privilege of implementing
14 policies and mandates and/or CIP programs.

15 As a third dimension, being an elected
16 official for the South Coast Water District by the
17 people representing them, and having to explain
18 why their taxes and fees are increasing as a
19 result of those mandates.

20 Four, as a state president for the
21 American Counsel of Engineering Companies, working
22 with the State Water Board to develop water
23 quality certifications for professional engineers.

24 My fifth dimension of water quality is
25 33 years as an avocado farmer, a member of the

1 Riverside County Farm Bureau, and a member of the
2 San Bernardino Irrigated Land where I personally
3 managed BMPs and do reports.

4 As a coastal community and entity of
5 the water district, water quality is our top
6 priority. Many beach cities work together to
7 implement water quality. Clean beaches mean happy
8 visitors to our community; therefore, we are
9 motivated to keep our constituents satisfied.

10 The South Coast Water District has
11 reduced water usage by 30 percent this summer,
12 well above the 20 percent target mandated by the
13 state. Aggressive sewer line inspections, as a
14 result of numerous sewer line (inaudible) have
15 included the state park at Doheny and the Dana
16 Point Harbor. We've done our fair share in our
17 community to preserve water quality.

18 Thank you very much for your time.

19 BOARD MEMBER STRAWN: Do we have any
20 other elected officials that I missed cards to?

21 Thank you. We'll go to San Diego
22 County.

23 CHAIRMAN ABARBANEL: No, we're going to
24 hear from Christina appearing for the EPA.

25 MS. ARIAS: Good morning, members of

1 the Board. My name is Christina Arias. I
2 actually stepped out of the room when you were
3 issuing the oath, so I believe I need to take the
4 oath.

5 CHAIRMAN ABARBANEL: Do you swear the
6 testimony you provide is true and correct. If so,
7 say "I do."

8 MS. ARIAS: I do.

9 We've been in contact with U.S. EPA
10 region 9 over the last several weeks, and,
11 specifically, David Smith has sent his regrets
12 he's not able to be here today, but he did ask us
13 to share some thoughts for you to consider.
14 There's two main items.

15 Number one, alternative compliance
16 pathway. Consistent with our prior comments on
17 proposed MS4 permits developed by the San Diego,
18 Los Angeles and Santa Ana region, EPA strongly
19 supports the proposed provision that permittees
20 would not be considered in compliance with the
21 water quality improvement plan provisions prior to
22 plan approval. Prior to a determination by the
23 regional board that the submitted plan contains
24 specific implementation commitments that are
25 sufficient to provide reasonable assurance that

1 TMDL and other relevant water quality based
2 requirements will be met. There is insufficient
3 basis to conclude that the permittees are or will
4 be in compliance.

5 Number two, this has to do with
6 clarifying expectations for the analysis and
7 planning under the alternative compliance pathway.
8 The proposed permit modifications include
9 additional language recognizing the availability
10 of an alternative compliance pathway based on
11 reasonable assurance analysis but provide only
12 limited direction concerning the regional board's
13 technical, analytical inclined expectations that
14 must be met by permittees pursuing this
15 alternative compliance pathway.

16 We have learned through our
17 observation of other regional board's experiences
18 with implementing this approach that more detailed
19 explanation of the regional board's expectations
20 greatly assists development of analyses and plans
21 that meet permit requirements.

22 If the Board adopts the proposed
23 language providing for this alternative compliance
24 pathway, we recommend you commit to promptly
25 develop a follow-up guidance to assist permittees

1 and other stakeholders in interpreting the
2 permit's provisions concerning this pathway.

3 It will best serve everyone's interest
4 if there are clear understandings about the level
5 of technical rigor necessary to demonstrate
6 reasonable assurance and the specificity of
7 implementation commitment necessary in the
8 associated implementation plans to secure
9 approval.

10 As EPA is currently working with the
11 state board on reasonable assurance analysis
12 guidance, we may be able to help the regional
13 board in developing guidelines to assist in
14 consistent, effective implementation of the
15 proposed permit alternative compliance pathway.

16 Thank you for considering these
17 comments. David Smith, manager NPDES, permit
18 section, U.S. EPA, Region 9.

19 CHAIRMAN ABARBANEL: Thank you. The
20 next speakers listed are the Riverside County
21 Copermittees. You'll have 15 minutes.

22 MR. MCKIBBON: Thanks. I won't need
23 that long.

24 Good morning, Mr. Chairman, fellow
25 Board members, I'm Stewart McKibbon with the

1 Riverside County Flood Control Conservation
2 District.

3 Our district is the lead permittee for
4 the Riverside County Copermittees, which consist
5 of the cities of Murrieta, Wildomar, Temecula and
6 the unincorporated county.

7 The first thing I want to do is say
8 we're pleased the staff and the board took this
9 opportunity of our enrollment in the regional
10 permit to include the alternative compliance
11 pathway. It's something we've been asking for for
12 many years, and to see it now is a very good
13 thing.

14 I also want to say, we are very
15 pleased with how staff has conducted the
16 introduction of the language to the community. I
17 want to say that Lorry Walsh and Wayne Chiu and
18 Mr. Gibson have been extremely helpful in
19 clarifying things that we -- we were trying to
20 understand, and they helped straighten us out a
21 little bit.

22 We have written comments on the
23 record, but what I want to take this 15 minutes to
24 do is just to focus on three issues that mean
25 quite a bit to our Copermittees. And you also

1 find out that it may mean something to our other
2 permittee friends in Orange County and San Diego.

3 The first thing, we believe the permit
4 should include compliance language for receiving
5 waters during the time the WQIP is being
6 developed. I'll be calling this "interim
7 compliance" while developing our plan.

8 In our conversations with the
9 executive officer and staff, they let us know that
10 they had concerns about it, and we just heard from
11 the EPA know that they had a concern that they
12 don't know people are going to follow through and
13 actually commit to improving water quality.

14 What I want to propose today, and I
15 provided this in writing to staff, but in more
16 detail is an approach that would provide for rigor
17 and accountability to the Copermittees during that
18 preparation phase. In short, what it is, is
19 simply -- you already have milestones for the WQIP
20 development in the permit. What we propose is
21 simply add deadlines for each one of those
22 milestones. If they're natural check-in points
23 that are already in the permit -- for example, we
24 have to start a public process or public
25 participation process to develop the model. We

1 have to have a committee, the consultation
2 committee. We have to submit an interim WQIP to
3 the regional board.

4 What we suggest is that we give
5 specific timeframes for when that has to be done.
6 And consistent with what's in the rest of the
7 permit, if we miss those timeframes and we're not
8 able to provide a rationale why we missed it, for
9 example, "We didn't have the meeting because
10 people were on vacation," instead of day 60, we
11 had it on day 72, that the regional board can say,
12 "That's a good rationale, and you're okay," and we
13 also have to provide some sort of plan to get back
14 on track if we're off track.

15 But if we don't make it on track, we
16 would recommend that the regional board can look
17 at this and then take away our compliance, because
18 we haven't performed like we said we would. What
19 we want to do is increase our accountability. We
20 want to increase our transparency, and we want to
21 increase our rigor during that formation process.

22 So like I said earlier, I provided
23 draft language to regional staff. I don't want to
24 go through it now and bog down the hearing, but
25 it's there if this Board is interested in

1 providing interim compliance to Copermittees.

2 The second issue I want to bring up is
3 a major issue. We did not include it in our
4 written comments, although I did bring it up in
5 our workshops, and that's the time available to
6 prepare the water quality improvement plan. Right
7 now, it's two years from the time of this adoption
8 that we have to complete the plan.

9 What I do for a living is I prepare
10 master drainage plans. That's what I do for a
11 living. I've done it six times in my life. Never
12 done one in two years. Never happened. We just
13 did one recently near Lake Elsinore. They only
14 covered 13 square miles. We ended up proposing
15 nine miles of channel and, probably, the total
16 cost of improvements was 50 million dollars. That
17 took us several years, like five, including
18 environment review, and over 9,000 hours of staff.

19 To try to compress that into two
20 years, my experience says that's going to be
21 really, really tough; it's not practical.

22 The second thing on why we want more
23 time and we should get more time is we want to
24 have a good plan. The best way to have a good
25 plan is community involvement, public

1 participation. If we have more time, then there
2 can actually be give and take. They can make a
3 suggestion; we can look at different alternatives.

4 If you only have two years, you have
5 to be very focused on getting to the finish line.
6 You can't look at better options. You might have
7 already made up your mind or you don't have the
8 time to really investigate what other people are
9 suggesting to you. So as a matter of having a
10 better plan, we recommend more time.

11 Third just another issue that -- this
12 permit originally came out in 2013. It was
13 recently readopted with our friends in Orange
14 County. This permit adds a public participation
15 process for the modeling, but there was no
16 additional time given. There was two years
17 before, now even more you have to do, you still
18 have two years. It simply was probably not fair,
19 is the right way to put it.

20 What we think would be a good time
21 period -- it would be tough but 36 to 40 months
22 from the adoption of this permit. That's similar
23 to what L.A. has; I think they have 40 months in
24 their permit. But we think 36- to 40-month,
25 something like that, will give that time

1 particularly for the interaction with the public,
2 get their input, incorporate their, ideas give it
3 a real shot, real alternative analysis.

4 The last thing I had is, Mr. Chiu,
5 when he was talking during the presentation talked
6 about the City of Menifee, and that the City of
7 Menifee is going to be governed by Region 8. They
8 need to participate in the process. The City of
9 Menifee has 1.3 square miles that is in the
10 watershed, and has no MS4 major outfalls. We have
11 the only one that's in the city. We control it
12 already.

13 They do have some curb and gutter, but
14 for the vast majority of the land that is in the
15 city, that is owned by private hands. So it makes
16 senses to us as a practical matter to excuse the
17 City from participation in the WQIP preparation
18 process. They really have nothing to do. They
19 don't even have an MS4 outfall. There's nothing
20 going on, really.

21 So the City of Menifee wrote a letter
22 that's in your written comments. We support their
23 letter. Also, support the -- there's discussion
24 earlier about milestones. We support having five
25 when we adopt our WQIP -- having the next five

1 years of milestones laid out. That's something,
2 as public works agencies, we have capital
3 improvement plans, which normally apply to
4 horizons. Those can be easily foretold. Trying
5 to predict something, year 15, year 20, 10, you're
6 going to end up changing it anyway. It's better
7 if you keep it close where you really have a good
8 control and can protect it better.

9 Finally, whether the actual reporting
10 increases our load, that was your question. That
11 came up, Ms. Olson. We believe there's some
12 consolidation, and there's a benefit from having
13 all of the information in one watershed and one
14 report. As far as the burden, Riverside county
15 permittees are only in one watershed.

16 We can definitely see if some of our
17 friends in San Diego -- the county has six or
18 seven watersheds -- this could be a burden on
19 them. For our own particular purposes, it
20 wouldn't be that much.

21 So I don't know. I've got six minutes
22 left. I can reserve that time for later in case
23 something comes up. I'd like to reserve that time
24 if there's any questions you have, I'm available.

25 BOARD MEMBER MORALES: Unfortunately,

1 you're the first speaker from the Copermittees so
2 I'm cutting right to it. Is the reason that the
3 Copermittees want, basically, to be deemed in
4 compliance while they're working on the WQIP so
5 they feel they're shielded from attack or
6 litigation or something like that? Are there
7 other reasons besides that?

8 MR. MCKIBBON: That's one reason.
9 Another reason is there is going to be a
10 substantial expense. We're talking a million
11 dollars to prepare a model and do all the meetings
12 that are necessary and all the alternatives that
13 we might have to accomplish. To have coverage --
14 that's real money; real commitment. Since we're
15 making that real commitment, there should be
16 coverage at the same time.

17 BOARD MEMBER MORALES: This will be a
18 question for everybody. You gave an estimate of
19 36 to 40 months as the timeframe for Riverside. I
20 am assuming that estimate is based on your
21 understanding for the availability of staff to put
22 into the process, and that will differ from
23 Riverside to San Diego to Orange County. So their
24 window timeframe may be different, may be the
25 same, may be wildly -- they may come in and say

1 "We can do it in two years." Some may say, "We
2 can't do it for eight. We don't have the
3 resources to get it done." That's a tough one for
4 me.

5 But I guess the last question I ha?ve
6 -- again, this will be for everybody is, having
7 anticipated that we were going to reach this point
8 today, have you all done any advanced work on the
9 WQIP process? Have any of your staff --

10 MR. MCKIBBON: Absolutely. We've
11 already gotten inventories, we're working on our
12 outfalls, determining whether they're persistent
13 flows or not; staff is working on that. They're
14 working to have a scope ready so I can go by
15 Thursday to consultants to do the modeling and do
16 the support work for the WQIP. We developed this
17 scope. We developed timelines. We've done a lot
18 of work already.

19 I've been talking to people that would
20 sit on the consultation panel. What we would like
21 to have is a public works director for the City of
22 Wildomar on this panel, and the city engineer for
23 Temecula on this panel. Why is that? Because we
24 have to make commitments to spending real dollars.
25 You need people to make decisions to do that.

1 That's not lower-level staff. Nothing against
2 lower-level staff, but they don't have the
3 authority and these people do.

4 So we have been doing work to do that.
5 We've also been talking to the water districts
6 here at the same time that we're doing this
7 regional planning effort, we should be doing
8 something that's not in the permit, which is storm
9 water recharge. I want to invite the Rancho
10 California Water District and Western Municipal
11 Water District to sit on the consultation panel so
12 we can examine and do storm water recharge at the
13 same time. It may not be in the WQIP, but it
14 would be in an adopted plan that's going to be
15 adopted by our Board.

16 And then going back to your middle
17 question, which was -- it's not just the fact that
18 the resources -- money is not the only resource;
19 time is an important resource. To have
20 interaction with people, you can't throw money at
21 them and think that's interaction. You have to
22 talk to them; you have to analyze what they
23 propose and have some give-and-take. You can't
24 sit there and say "I know what's best." It won't
25 fly. We want a plan that has community buy-in.

1 You won't get community buy-in if you stiff-arm
2 them on this process.

3 BOARD MEMBER MORALES: Maybe it was
4 inartfully phrased but I equated money with staff
5 positions.

6 MR. MCKIBBON: Right now I've got --
7 anticipating five people in house, working on it,
8 plus two consultants on the outside. It's going
9 to be a substantial investment in money for
10 Riverside County.

11 BOARD MEMBER MORALES: Thank you.

12 BOARD MEMBER STRAWN: I was going to --
13 with your permission, I'm going to add 30 seconds.
14 I don't want to charge people for answering the
15 question about the paperwork. I want to encourage
16 you.

17 CHAIRMAN ABARBANEL: Just for the
18 public's information, we bought Gary an atomic
19 clock.

20 MR. MCKIBBON: Appreciate your
21 consideration.

22 CHAIRMAN ABARBANEL: I have a
23 question. I understand your argument for
24 extending the time fully creating -- creating a
25 full-blown WQIP. Would an interesting or

1 acceptable middle position be that in a two-year
2 period, you have to come up with a draft of where
3 you're going but not come up -- that you may still
4 be working, but a final plan would come 12 to 14
5 months later.

6 MR. MCKIBBON: That's workable. I
7 want to point out there's no mention of getting
8 SEQA approval in the permit. That takes time as
9 well.

10 I want to say yes to your middle
11 ground -- I also want to say if you want the
12 permittees, you want them to build BMPs to
13 actually impact water quality, go to places that
14 have been hydromodified, if that's a word, we're
15 going to need a SEQA document, and you're going to
16 have to consider all these things together because
17 one of those SEQA things is the cumulative impact.
18 What is the cumulative impact do in all this?

19 You don't know until you have that
20 whole plan. And then we can go adopt it. That
21 plan, once adopted, is our Board authority to go
22 get right of way, to build these things, for us to
23 spend funds. So the SEQA is an important element
24 of this plan for the way it's being envisioned.

25 At no timeframe has been accounted

1 for. Some of these facilities may come later
2 because we need to do the SEQA, as well.

3 Thank you.

4 BOARD MEMBER OLSON: I just wanted to
5 understand this a little better. You have
6 submitted to the staff a plan that would have
7 certain requirements, but would give you -- but
8 would put the agency in compliance during the time
9 period that they're developing the water quality
10 plan.

11 MR. MCKIBBON: Yes, we developed
12 specific language, looks just like your permit,
13 that can be inserted to the permit. Here are the
14 check-in points. Here are the time frames when
15 we'll check in. We have to have a rationale and
16 plan to get back on track. Then the executive
17 officer can say you're out or whatever. I imagine
18 the executive officer would recommend to this
19 board our compliance be terminated until we adopt
20 a WQIP.

21 BOARD MEMBER OLSON: So I guess the
22 end of the time for comments was on September
23 14th. So you -- can you give me a timeframe about
24 when --

25 MR. MCKIBBON: I submitted it to Lorry

1 on Monday, and we developed it last week because
2 we knew that -- I don't know how this Board feels
3 about compliance during this time period, but we
4 wanted to have, if this board thought it was
5 acceptable, an option, something you could choose
6 from. "Heres something that's already been
7 thought about to incorporate into the permit." So
8 that's the idea.

9 We've always been asking for interim
10 compliance, but this is specific language that
11 could make that work, more than just saying: "We
12 want interim compliance," something more.
13 Something more accountable.

14 BOARD MEMBER OLSON: Thank you.

15 CHAIRMAN ABARBANEL: The next group of
16 speakers or individual speakers is the Orange
17 County Copermittees. You'll have 30 minutes.
18 Given the time, we will follow that with the
19 cities of Laguna Beach and Dana Point and the San
20 Diego County Copermittees, and then we will have a
21 lunch break.

22 MS. CORPANICH: Good morning,
23 Mr. Chair, members of the Board. I'm Mary Anne
24 Skorpanich from the County of Orange. I want to
25 thank you for the opportunity to speak with you

1 once again today and thank you in advance for
2 consideration of our comments and the kickoff for
3 a three-part presentation, to be followed by Ryan
4 Baron, County Counsel, and Jeremy Jungreis,
5 representing some of the city Copermittees. And I
6 did want to make note that our comments are on
7 behalf of all the permittees in South Orange
8 County, and that we would like to save whatever
9 remainder of time we have at the end for questions
10 and answers that may come later.

11 You may have noticed, but I did the
12 green card today because I'm here to say "Yay for
13 alternative compliance options and thank you."
14 Let me just -- I should also note you won't have
15 the pleasure of hearing from Richard Boon from our
16 staff today. He usually presents many witty
17 insights into the issues that we're talking about,
18 and always ends with quotes. I did begin with a
19 quote from one of my personal heroes.

20 So I've addressed your Board a number
21 of times asking that we have a permit with which
22 we can be in compliance. This has been a big
23 issue for us over the years. It's something that
24 we take as a point of pride in our careers that we
25 are operating a program, and we have a permit with

1 which we are in compliance. So we very much do
2 appreciate what you have included in the permit
3 today.

4 For as much as there's been progress
5 by the Orange County permittees improving water
6 quality in south Orange County, what we have
7 achieved over the years, even if we could achieve
8 a hundred times more than that, we would not be in
9 compliance if there was a single excuse in a
10 single water body on a single day, coming from any
11 discharge, whether it's our own MS4 system or
12 otherwise.

13 This issue of having a pathway to
14 compliance to extremely important to us. No other
15 area of environmental regulation, to my knowledge,
16 imposes new requirements where the onus is to be
17 in compliance upon adoption. Air quality
18 regulations, for example, there are always targets
19 out in the future are saying "You need to change
20 vehicle fleets by this year. You need to reduce
21 vehicle emissions by this source out in the
22 future." I think this may be unique in the realm
23 of environmental regulations. I think it's a big
24 step forward that permits today are being
25 processed and adopted that have a means by which

1 we can achieve compliance.

2 The amendments before you are critical
3 for the regulated community for a number of
4 reasons. First, this permit establishes a paradigm
5 shift, and it places the permittees in the
6 position of being responsible and being stewards
7 of the entire watershed, including not only our
8 own discharges but the discharges from other
9 parties, and also naturally-occurring conditions.

10 We do have instances that I think you
11 may be aware of where we have reference streams in
12 the region where numbers are higher than what the
13 basin plan objectives are. There are
14 naturally-occurring conditions or things that come
15 from non-anthropogenic sources that cause
16 exceedances that have nothing to do with what the
17 MS4s do or do not do, or how fast they do it, or
18 how well they do it.

19 In some cases, the solutions are
20 exceptionally long-term, and you were asked
21 earlier about impediments. We fundamentally need
22 to remake the structure of our communities that
23 have been developed over a hundred years and more
24 including the very patterns that underlie those
25 communities, and that's not something we can

1 achieve.

2 I think logistics is probably the
3 biggest impediment. Cost, of course, goes along
4 with that, but we couldn't achieve that in a day
5 or year or permit term. So having that pathway to
6 compliance helps us work around that type of
7 impediment. I would also say it's a long-term
8 process to achieve water quality standards,
9 complicated by vagueries in the science, lack of
10 technology, with some of the issues like
11 wet-weather bacteria, for example, what technology
12 we can use and logistics we can employ getting
13 back to the pure physics of how do you deal with
14 that volume and velocity of water that comes with
15 a storm. We don't have the means to achieve that
16 today. There's also shortfalls in funding and
17 education and development and so on.

18 You heard us say before the current
19 state of the environmental conditions was not
20 reflected in the permit, which we see as a
21 necessary starting point for what the permit
22 should have in it. Fortunately, with the water
23 quality improvement plan, with alternative
24 pathways we can now use those current conditions
25 going forward as the basis for the water quality

1 improvement plan. I think we achieved a great
2 deal of progress in that.

3 Finally, the Clean Water Act does not
4 require MS4s to meet effluent limits, and there
5 are many numbers that I mentioned earlier from
6 naturally-occurring or non-anthropogenic sources
7 that we cannot meet. If we're going to be
8 required to do so under this permit, then we need
9 to have a way to be in compliance.

10 This watershed planning, the water
11 quality improvement plan now provides the means to
12 achieve this, and the permit finally provides this
13 pathway for us, and is generally supported by the
14 permittees from South Orange County. It provides
15 a measurable profit for attaining compliance with
16 numeric standards, and it allows us permittees to
17 focus our resources on implementation rather than
18 checklists and, potentially, third-party lawsuits.

19 I'm going to be followed up today by
20 Ryan Baron from County Counsel to talk some more
21 about how we think we can make this better.

22 Thank you.

23 CHAIRMAN ABARBANEL: Any questions of
24 Mary?

25 BOARD MEMBER MORALES: What is Orange

1 County's response to, say, if somebody were to ask
2 that question, "If you're given this field during
3 that period you're developing the WQIP, what's the
4 incentive for you all to hurry or get it right?"

5 You know, in fact it could also be
6 phrased as if there's no downside to not hurrying
7 up or not doing it, what's the disincentive to
8 doing very little?

9 MS. CORPANICH: As I understand it,
10 you have two parts of your question; one is the
11 time urgency, and the one is the level of effort
12 or the degree of effort that we put into it, the
13 rigor with which we approach.

14 I would say in terms of the timeline,
15 you already have that built into the permits. You
16 already have a deadline for us to prepare this and
17 submit it to your staff.

18 BOARD MEMBER MORALES: Could Orange
19 County do it in two years?

20 MS. CORPANICH: We are are going to
21 make every effort to do that in two years. I will
22 say that my colleagues from Riverside County made
23 a very good point that you have better engagement
24 with the public, if you have a little bit more
25 time. I don't know that we would be asking for

1 more time if we aren't going to have an interim
2 compliance. It just stretches out the amount of
3 time that we are out there.

4 The other is the rigor with which we
5 prepare these WQIPs. I would say there the
6 incentive is already built in for us. We need to
7 submit something to your staff that your staff
8 will accept, so we also are having to submit
9 something that we believe that we can implement
10 and that we believe from our best analysis that
11 will get us to the finish line. So I really think
12 that incentive is already built into what you have
13 in the permit today.

14 BOARD MEMBER MORALES: I'm trying to
15 play on all the scenarios.

16 MS. CORPANICH: In fact, we've had our
17 permit now since February, I believe it was.
18 We've already started our public process. We've
19 already sort of laid out how we're going to attack
20 the work. We are well underway because we know
21 two years is not a lot of time. But I will tell
22 you that, probably, the most criticism we hear
23 from the public is that we're having these public
24 meetings, we're asking for their input, but we're
25 rushing to the next step because we don't have a

1 lot of time to grind through alternatives, as
2 Mr. McKibbon was pointing out, and to consider
3 that for more discussion and things of that
4 nature.

5 So we do hear that complaint a lot
6 from the public when we're on a timeline, as with
7 the water quality management plan, as well. We
8 had, I believe it was, two years to do that, and
9 it was a very aggressive schedule, but we did it.

10 CHAIRMAN ABARBANEL: May I ask you the
11 same question I asked Mr. McKibbon. I have never
12 prepared a WQIP, neither have you, yet there are
13 many things one might be able to do with a longer
14 time period. I think 40 months might be a good
15 time. What would be your response to having a
16 draft of the WQIP in two years to be discussed
17 with the staff but a final a year later, in which
18 you could respond to that, have more public input,
19 whatever you deem.

20 MS. CORPANICH: I think that would be
21 preferable. I think that would be good, and I
22 think, based on the -- from what I know, the
23 experience with the San Diego permittees has been,
24 it takes some time once they're submitted, until
25 we can get to final approval.

1 CHAIRMAN ABARBANEL: I wonder if I can
2 ask Mr. Chiu a question in that regard.

3 MR. CHIU: Yes.

4 CHAIRMAN ABARBANEL: Suppose the
5 County of Orange came in in two years with a WQIP
6 and came in with a modification, is there a
7 provision to accept that modification in place of
8 the two-year WQIP?

9 MR. CHIU: The way the process is set
10 up, they are provided up to two years to develop
11 the water quality improvement plan. The water
12 quality improvement plans are given two years to
13 be developed. The permit also allows those water
14 quality improvement plans to be updated on an
15 annual basis, so there's every opportunity to make
16 improvements to the plan itself, on an annual
17 basis, but they have to do it at least once every
18 five years in a report of waste discharge.

19 CHAIRMAN ABARBANEL: So there's a path
20 to do what I've been trying to explore. Come to
21 you in two years, "This is where we've gotten, but
22 we're not yet satisfied. We want more public
23 input. We want more time for new ideas and so
24 forth," and choose on their own to proceed for
25 another year, for example, and come back and say

1 "This is where we are after three years."

2 MR. CHIU: There's -- with the water
3 quality improvement plans, there's the water
4 quality improvement plan process, which has
5 elements that are required be included in the
6 plan, elements that need to be discussed, vetted
7 through the public participation process. There
8 are submittal requirements for us to review and
9 for the public to review along the way, and at the
10 end of the process, we have to determine whether
11 or not they're in compliance with the permit.

12 The plans themselves, I don't know
13 that we ever call them final plans, right, because
14 they're meant to be adapted over time, and they're
15 intended to be living documents, essentially. So
16 the first plan that they submit may be considered
17 final in terms of what we would accept as a
18 starting point, but it is never considered the end
19 point until water quality has been fully restored
20 and achieved in the watershed and/or region,
21 relevant to MS4 discharges, of course.

22 If you are looking to have some
23 opportunity for the Copermittees to submit a draft
24 plan of some sort, which we can then allow them to
25 begin implements or -- I'm not exactly sure how we

1 would transition from planning to implementation.
2 The way we have permits set up, again, once we
3 accept the plan, that is the starting point for
4 implementation. We've seen enough in the plan to
5 understand how they intend to implement their
6 program to achieve their goals.

7 Now, a plan does not necessarily have
8 to have every single water body combination under
9 the sun be part of the plan in order for it to be
10 accepted. At least for the water quality
11 improvement plan, only under the alternative
12 compliance pathway, there is a certain subset of
13 pollutants that need to be incorporated in the
14 plan, namely that is not every pollutant under the
15 sun, but it is a fairly large set of pollutants.

16 I understand there are other
17 pollutants that are currently in exceedance of
18 water quality objectives that are not on the 303
19 list, and they would also like to have coverage
20 for those pollutants, as well. The permit allows
21 for that, or the alternative pathway compliance
22 language allows for that. But that doesn't
23 require them to have every pollutant under the sun
24 under their water quality improvement plan.

25 They can focus a lot of their work on

1 those 303 listed to begin with and then adapt
2 their plan in the future to incorporate the other
3 pollutants that they are concerned with, as well,
4 in future generations of the plan.

5 We need to have someplace where they
6 begin implementation, and that is the part I'm not
7 quite will clear how we would do that if we had a
8 draft plan that would have some additional time
9 for a final plan.

10 CHAIRMAN ABARBANEL: Lest it leak out
11 that we're looking to the Los Angeles region for
12 leadership, do you understand why they have a
13 longer period than 24 months, as I understand one
14 of the speakers to say.

15 MR. CHIU: My recollection of their
16 language was that they had 24 months to develop
17 the plan, but it could have been because of their
18 rather long review period, and they had, I guess,
19 some back and forth with the plan developers as to
20 how the final plan should look. May have been
21 extended to 36 to 40 months, but my understanding
22 is they were given 24 months to begin with. And
23 similarly with the Santa Ana region, they've
24 proposed an alternative compliance pathway, as
25 well in their draft permit. That similarly

1 provides 18 months with an option to extend it an
2 additional 6 months for their plan. I think we
3 are right in there in terms of the amount of time
4 we're allotting to the development of a plan.

5 If you think about a permit term being
6 five years, if we were to have 40 months of plan
7 development, you would only have you know 20-some
8 months of actual implementation before you would
9 have to start relooking at a plan. I'm a firm
10 believer that planning has its place but
11 implementation is where you get results. I would
12 much rather have a plan that may have been rushed
13 a little bit but has great potential to improve
14 water quality and begin the implementation and
15 start learning from implementation and the
16 mistakes that you may make along the way.

17 MS. SKORPANICH: If I could just
18 elaborate on what Mr. Chiu said, our permit
19 expires in 2018. So we won't be talking to you
20 next year but it's not going to be a full five
21 years.

22 CHAIRMAN ABARBANEL: I understand the
23 transition to incorporating all three counties in
24 the same permit, but we'll see you in 2018.

25 BOARD MEMBER OLSON: I just had one

1 question. So if you had to say the greatest
2 hardship with meeting what the staff has proposed
3 and what the negatives are for you, can you sort
4 of elaborate on that for us.

5 MS. SKORPANICH: I think not having
6 that compliance option, and you'll hear more from
7 my fellow speakers on this presentation about what
8 not only can happen but what has happened when we
9 don't have some means of being in compliance with
10 the permit.

11 BOARD MEMBER OLSON: Do you also have
12 CEQA requirements.

13 MS. SKORPANICH: We're still sorting
14 out how exactly that would happen. While you're
15 the ones approving the plan, we're the ones
16 implementing it. Who's the lead agency? There's
17 some finite details we need to work out on that.

18 BOARD MEMBER OLSON: Have you had a
19 chance to look at what Riverside has proposed for
20 an interim compliance where you go -- where you
21 have coverage over the interim compliance which,
22 right now, the proposal before the Board is no
23 interim compliance.

24 MS. SKORPANICH: Right. So the three
25 counties actually met with your executive officer

1 two weeks ago or so, two to three weeks ago, and
2 talked about this very point. What we heard from
3 the staff at the time was that they had nothing --
4 no means by which they could enforce compliance
5 during the period of time the WQIP was being
6 developed, and we suggested that if there were
7 sort of reporting in milestones, deadlines that we
8 had to meet during the development process, that
9 they would then have a clear enforceability built
10 in.

11 We would agree that milestones during
12 development of the water quality improvement plan
13 should meet the needs of what your staff is
14 looking for.

15 BOARD MEMBER OLSON: Mr. Chiu, could
16 you comment?

17 MR. CHIU: I'm sorry, exactly what was
18 the topic we were talking about?

19 BOARD MEMBER OLSON: What we were
20 talking about was there was a proposal brought
21 forward by, as I understand it, by Riverside and
22 the three counties met with our executive director
23 and it was said that you couldn't have interim
24 compliance because there would be no way to
25 enforce it. They're saying if you had certain

1 things built into the interim compliance...

2 I'd like to hear your view on that or
3 what the staff concluded.

4 MR. CHIU: So we received a proposed
5 set of language from Mr. McKibbon early this week.
6 We reviewed it. The way they have structured
7 their compliance pathway during the plan
8 preparation process essentially boils down to
9 document submittals or process completions. It's
10 not really having to do with improvements to water
11 quality. It is all about process, and as long as
12 they have met some process requirements in the
13 interim time between those processes being
14 completed, they would be deemed in compliance.
15 But compliance would be, essentially, with
16 their submittal of a notice of intent to develop a
17 plan.

18 For us, at least in this region, we
19 didn't think it was appropriate to be granting the
20 Copermittees -- what we consider a real privilege.
21 I mean, this compliance pathway is not a right.
22 This ability to be deemed in compliance is not a
23 right; it is a privilege. We strongly believe
24 that in order to have a privilege like this, to be
25 deemed in compliance, there has to be something to

1 show us compliance with receiving water
2 limitations will, in fact, be achieved at some
3 point in the future.

4 Until we can see a plan and the
5 content of that plan, it's very difficult for us
6 to make that determination. So, you know, in a
7 lot of ways, what we consider as a compliance
8 pathway, it's kind of like a real -- it's kind of
9 like a club. It's a club of very special
10 Copermittees that have made a real commitment to
11 improve water quality.

12 The way we formed our club is to have
13 some things that need to be completed before you
14 can actually enter the club. In other regions,
15 they make their club a little less exclusive than
16 our club, and we think that to earn a place in our
17 club, you have to show us that you deserve that
18 spot. And for us to say that anybody can be in
19 the club as long as you hand in a slip of paper,
20 we just don't think that rises to the level of an
21 exclusive club that we want.

22 BOARD MEMBER OLSON: I get confused.
23 Do you not -- do you think people are somehow not
24 serious about trying to improve the water quality?
25 If they meet their goal, continue to meet their

1 goal, make the environment better, their lives are
2 much easier to deal with. So I understand that
3 you want people to be very serious about what they
4 do. It's my intention or my belief people are
5 serious.

6 So maybe I'm missing something, and
7 you'll have time to speak, and maybe you can
8 explain it a little better to me because I really
9 would like to be able to be able to understand
10 your viewpoint.

11 MR. CHIU: I understand how it seems a
12 little odd that we keep on making it seem like
13 there's no real dedication to improving water
14 quality. We see the efforts the Copermittees have
15 gone to in order to improve water quality. At the
16 same time, we have also seen the Copermittees have
17 not taken the opportunity that they've already had
18 to improve water quality. We've had this interim
19 process in place since our 2001 permit, the third
20 term permits.

21 That interim process was intended to
22 be self-implementing by the Copermittees. They
23 were supposed to tell us when there were
24 exceedances caused by their MS4 discharges, and
25 they were to prepare a plan to tell us how they

1 would address those exceedances.

2 Since we've put that language into the
3 permit, not one Copermittee has come forward to
4 say "We are causing this." In fact, it was always
5 the opposite. It is -- there are problems in the
6 receiving water, we acknowledge that. But we
7 don't have data to show we are causing it. We
8 don't believe we should be doing much more than
9 what we're doing today.

10 It's hard for us, at this point in
11 time, to really believe that they have a true
12 commitment to improving water quality to the level
13 we believe is necessary, because this board has
14 been mandated and given the great responsibility
15 of protecting the waters of this state -- not just
16 protecting, preserving, restoring and enhancing
17 the waters of this state.

18 We're not just trying to make it was
19 good as it was today. We want to make it as great
20 as it was before and we want to make it better for
21 tomorrow. So it's not that we want to keep the
22 status quo. That's our mission. So in a lot of
23 ways, what we've seen and heard from the
24 Copermittees is they agree with our mission, but
25 they don't agree that they have to help us in our

1 mission.

2 The water quality improvement plan was
3 our way of saying, "Well, we've heard from you on
4 many occasions that you know a better way. That
5 can happen, but you need to give us the
6 flexibility to do it because these permit
7 requirements are tying our hands. It's making us
8 do things that are not necessary."

9 So we changed it. We said, "Here's
10 the flexibility you're looking for, but we want
11 the outcomes."

12 We've tried to align our objectives as
13 much as possible but the water quality improvement
14 plan and the alternative compliance pathway,
15 again -- the alternative compliance pathway is, in
16 our mind, a privilege. It is something that is
17 going to say you are in compliance. We will
18 consider you in compliance knowing full well that
19 your discharges are actually causing or
20 contributing to impairments, right?

21 So we need to have some assurance that
22 we will get credible plans, durable plans,
23 rigorous and transparent plans that everybody,
24 including the public, can understand how we will
25 get from today's water quality conditions to water

1 quality conditions we say we want, and what this
2 Board wants.

3 I think we're getting a lot by
4 including this alternative compliance pathway to
5 begin with. To actually offer compliance during
6 the preparation process, I think that is asking a
7 little much when we have not seen a record.

8 BOARD MEMBER OLSON: Thank you very
9 much.

10 *Mr. Chairman, members of the Board,
11 we're going to hear a range of discussions on this
12 today, and this is a good opportunity to hear from
13 other folks on this very different subject.

14 CHAIRMAN ABARBANEL: Moving on with
15 Orange County.

16 MR. BARON: Good morning, Chairman
17 Abarbanel, honorable Board members, Ryan Baron,
18 County Counsel's Office, County of Orange. I
19 think the shot clock is at 25:30, for the record,
20 but who is counting. I'll try to be brief.

21 I want to begin by saying that we join
22 in the comments of Riverside and San Diego County,
23 but we come with one issue today on behalf of the
24 Orange County permittees. That's been the biggest
25 issue for us since 2013, when the regional permit

1 was adopted. It's been the biggest issue up and
2 down the state that was dealt with by the state
3 Board order this summer; that is compliance during
4 development and during implementation.

5 Just to give you a little road map
6 where I'm going. First I'll talk about the
7 background for development and implementation in
8 Orange County. Some of the assumptions and
9 implications about the WQIP planning and
10 development process. A little background on the
11 State Board order on the LA permit, and then some
12 response on EPAs comments, and then Mr. Youngrice
13 is going to follow up with some of the recent
14 litigation of an MS4 permit in South Orange
15 County.

16 In order to understand our request --
17 I'm going to refer to as "full compliance" --
18 compliance during the development process, I want
19 to first talk about the process that's going on
20 right now. Orange County enrolled in the regional
21 permit in February of 2015. It began the WQIP
22 process in August 2015 to, as you'll see there
23 from the first arrow, to determine an approach,
24 identify existing data sources, obtain public
25 input and form a consultation panel.

1 Under the tentative order, this is
2 over a two-, two-and-a-half-year process from
3 February 2015 or August 2015 when it began to the
4 fall of 2017. The next few years, spent
5 developing a detailed and rigorous implementation
6 plan with the input of 12 Copermittees, various
7 stakeholders and the public. It's a fairly
8 significant effort, which I'll talk about in a
9 second.

10 The technical consultant costs alone
11 are estimated to be about \$500,000 for this
12 two-year period. That does not include internal
13 staff costs, which are usually from 20 to 50
14 percent of a project, CEQA review and the need for
15 negative declaration or programatic EIR. Those
16 can cost a half million dollars by themselves.
17 And attorney review of the WQIP, looking for
18 compliance, which is going on in L.A., and all the
19 cooperative agreements that both sides might have
20 in house get involved in, trying to put together,
21 multi-party contracts, take them to the 12 city
22 councils and and district boards to enter into
23 these agreements and change scopes of work and
24 consultant contracts and so forth.

25 So it's a fairly significant effort in

1 this two-and-a-half-year process. This is a list
2 of the pollutants of concern from 303 impairment
3 that Orange County will be dealing with and south
4 Orange County, that will be preparing final
5 numeric goals for, compliance schedules, other
6 implementation strategies and control measures.

7 So without compliance during the
8 two-and-a-half-year period of development, the
9 Orange County permittees will need to strictly
10 comply with the numeric limits for each of these
11 pollutants during this development period.

12 Now, normally when a pollutant has --
13 or a water body is on the 303D list, the state is
14 required to prepare or establish a total maximum
15 daily load, TMDL. If the state does not do that,
16 they can be sued to be establish the TMDL. If the
17 state fails to do so, the EPA must establish one.

18 In my opinion, when a county and the
19 permittees are putting together interim and final
20 numeric goals, implementation plans, control other
21 strategies, these are the things that typically go
22 into a TMDL, and it's accompanied by an
23 implementation plan that goes into the permit
24 later on when it's adopted.

25 Essentially, the permittees through

1 the WQIP process are preparing TMDLs, time
2 schedule, orders compliance schedules on behalf of
3 the state during this time. TMDLs typically take
4 several years to develop. They can take a decade
5 or more to implement. And we are sort of taking
6 on this responsibility in order to improve water
7 quality and hopefully obtain full compliance
8 during development and during implementation.

9 Now, most what I'm going to focus on
10 is development, but I will touch briefly on
11 projected implementation costs for coliform in
12 south Orange County. Geo Syntech, the county's
13 consultant, did a rough analysis including that.
14 Implementation costs alone will be somewhere
15 between 1.6 billion to 2.1 billion for the south
16 Orange County watershed. This will include some
17 other combinations as well, but it's primarily
18 looking at coliform bacteria.

19 CHAIRMAN ABARBANEL: These are five
20 year costs or annual costs?

21 MR. BARON: I believe this is the
22 total projected cost for a 10, 20 or 30-year
23 period.

24 BOARD MEMBER MORALES: That makes a
25 difference.

1 BOARD MEMBER OLSON: That makes a big
2 difference.

3 BOARD MEMBER MORALES: Could you give
4 us the background on one of those numbers so we
5 know what went into the reason.

6 MR. BARON: If I could call up Richard
7 Moon.

8 MR. MOON: Richard Moon with the
9 County of Orange. I've not taken the oath.

10 CHAIRMAN ABARBANEL: We can fix that.
11 Do you swear the testimony you will
12 provide is true and correct. If so, say "I do."

13 MR. MOON: I do.

14 So we had we asked Geo Syntech to look
15 at the cost projections prepared for Los Angeles
16 County, and the costs that were available for the
17 WQIPs that have been prepared for San Diego
18 county. And this, as Ryan said, focused
19 principally on bacteria, but they calculated a
20 range of cost for meeting water quality
21 objectives, standardized on impervious areas. So
22 the costs have been pulled from all of these
23 different plans, and I think they looked at
24 between nine and 12 of these watershed management
25 plans.

1 From those, we arrived at a range, so
2 at the low end, 1.6 billion. The top end of the
3 range, 2 billion, based on figures called from
4 these other plans.

5 CHAIRMAN ABARBANEL: Did those plans
6 take into account the financial benefits from
7 having implemented the plans?

8 MR. MOON: No.

9 CHAIRMAN ABARBANEL: So one can assume
10 there will be benefits, and the numbers will be
11 comensurably smaller.

12 MR. MOON: That's correct.

13 BOARD MEMBER MORALES: Again, is it
14 based on per year? Per 10 years? Per 100 years?

15 MR. MONN: It's the total projected
16 cost. So we would need to spend if we --
17 regardless, whether you do it over one year or 40
18 years or 20 years, yes.

19 CHAIRMAN ABARBANEL: Other questions?

20 BOARD MEMBER STRAWN: Now year
21 dollars?

22 MR. MOON: Yes.

23 MR. BARON: The second issue I wanted
24 to bring up before I get to the punch line, I want
25 to discuss some of the assumptions and legal

1 issues involving the WQIP process. It's been said
2 compliance is not a right, but, in fact, the way
3 environmental law works, you're deemed to be in
4 compliance until you're out of compliance, and
5 when you're out of compliance there come
6 significant civil penalties and even criminal
7 sanctions under the Clean Water Act. We take
8 compliance as a big deal, and it's sort of my job
9 to worry about it.

10 By way of legal background, Courts
11 have held that MS4s are not required by the Clean
12 Water Act to strictly comply with the numeric
13 effluent limitations, and the State Board order
14 went through a thorough analysis in this case. It
15 came to the same conclusion. That was also
16 reiterated in an opinion in a circuit court in
17 Maryland, that federal law does not require MS4s
18 to meet strict numeric standards.

19 Now, EPA has not promulgated any
20 binding regulations to that effect. When EPA has
21 encouraged states to require strict compliance for
22 numeric limits, where feasible, it has been
23 through guidance documents; the most significant
24 of which was 2014 EPA storm water memo on the
25 establishment of TMDL waste load allocations where

1 it said "This memorandum is guidance and does not
2 impose legally binding requirements on EPA or the
3 states.

4 The state boards also analyzed this
5 particular memo and came to the same conclusion
6 that I'm articulating today. However, the State
7 Water Board clarified its prior order on receiving
8 water limitations, and it said that regional water
9 boards should require strict compliance with water
10 quality standards.

11 So, in essence, what I'm trying to say
12 is, it's not a federal issue; it's a state law and
13 policy issue to basically go through the WQIP
14 process, which is premised on meeting numeric
15 limitations at the end of that process. The third
16 point I'd like to discuss is the implications of
17 alternative compliance pathway. The permittees
18 are required to develop watershed improvement
19 plans. They have the option under the tentative
20 order to develop interim compliance and final
21 numeric goals, strategies, compliance schedules,
22 annual milestones, if they choose in order to
23 obtain compliance at the Executive Officer
24 approval of the implementation plan.

25 So, again, we've talked about this

1 many times in the workshops last summer: This
2 effectively requires permittees to not just to put
3 together a plan, but to put together a very
4 rigorous, expensive development implementation
5 plan, that is almost identical to developing a
6 TMDL, compliance schedules, time schedule orders
7 by the permittees in this two to
8 two-and-a-half-year period.

9 Those are typically obligations of the
10 state. The state typically has the responsibility
11 with collaboration of the permittee to establish
12 those.

13 In this case, the permittees will be
14 taking on all of those costs and responsibilities
15 and submitting it to executive officer, hopefully
16 for approval of these TMDL compliant-schedule-like
17 improvement plans. So we feel, and as Richard
18 Moon has said, you're becoming the ultimate
19 stewards of the watershed in taking on a lot of
20 these obligations.

21 So I guess with a fear of sounding
22 like my 5-year-old kindergarten daughter, we feel
23 there's a fundamental fairness that should be with
24 being deemed in compliance at the time we tender a
25 notice of intent to develop one of these plans.

1 This is the path followed in LA. It's also the
2 path being proposed in Santa Ana, and I believe
3 it's the path being heard today in the Bay Area,
4 as well.

5 If there's extensive planning to deal
6 with state requirements and taking on a lot of the
7 state's obligations, in costs and resources, there
8 should be an incentive to have full compliance
9 from the start of the development process to the
10 end of implementation, so long as the permittee is
11 diligently and rigorously adhering by that
12 development schedule and meeting all those
13 milestones.

14 Planning and development is
15 fundamental to implementation. I don't believe it
16 can be bifurcated or sort of have this line drawn
17 as to where that approval should be. The planning
18 and development process will include prioritizing
19 pollutants, extensive modeling, setting interim
20 goals, assessing strategies, et cetera.

21 I wanted to give some background on
22 the State Board order, because that came up early
23 on. The State Board, on page 15 of the order,
24 started out, "We are sympathetic that receiving
25 water limitations may result in many years of

1 noncompliance."

2 So the State Board rightfully
3 understood the position that the MS4s were in as
4 transporters of water and not actual dischargers
5 -- industrial dischargers discharge pollutants in
6 their chemical manufacturing process.

7 But as transporters of water, it would
8 take years, many years of technical efforts to
9 comply with receiving water limitations. It said
10 it was reasonable to provide for an alternative
11 compliance process if seven principles were
12 followed.

13 The fact sheet states the regional
14 water board is to consider an alternative
15 compliance option. But actually, in my
16 interpretation of the State Board order, which I
17 think is probably with Mr. Morales's
18 interpretation, is Principal 3 says phase 1
19 permits should provide for a compliance
20 alternative that allows permittees to achieve
21 compliance with receiving water limitations over a
22 period of time. Consider is used on page 51, as
23 part of that "should implement."

24 To consider the L.A. WMP, EWMP pathway
25 as a potential option. In a footnote, the State

1 Board order also says you can look at (inaudible)
2 options, so long as those meet the several
3 principles set out.

4 The idea is that an alternative
5 compliance pathway should be implemented to
6 achieve compliance over a period of time, and if
7 one is not, or one of the other principles aren't
8 followed the region specific or permit specific,
9 the reason should be articulated. The
10 regional board found that compliance during the
11 development period was sufficiently constraint and
12 reasonable because the permittees were still
13 having to meet the relevant deadlines for
14 watershed management, planning and development.
15 They were still having to implement low-impact
16 development, green streets policies, and other
17 watershed control measures. Those measures were
18 not allowed to be put on hold during that 18-month
19 or 24-month period.

20 In fact, the initial version of the LA
21 permit was so stringent that if a permittee did
22 not hit one of those development milestones, it
23 was found out of compliance and could not come
24 back into compliance until the implementation plan
25 was approved by the executive officer at the end

1 of the period.

2 The State Board found that was too
3 stringent and changed the L.A. permit and allowed
4 dead lines to be adjusted or extended for good
5 cause.

6 So we believe the tentative order, as
7 written, does not follow their principle 3.
8 Instead of allowing compliance to (inaudible) over
9 time, it requires permittees to strictly comply
10 with the prohibitions and limitations immediately
11 upon enrollment and throughout the two,
12 two-and-a-half-year planning period, or four
13 years, whatever this Board decides to set.

14 There's no ability right now to
15 prioritize pollutants. WQIPs are premised on
16 prioritizing pollutants so that you are chasing
17 the biggest pollutants of concern. However, that
18 prioritization doesn't come into affect until the
19 WQIP is approved by the executive officer. So
20 there really is a status quo period during this
21 two to two-and-a-half-year time period where we
22 have to worry about each and every one.

23 We also believe that there's no permit
24 specific or region specific finding for this
25 partial compliance option that's being offered in

1 the permit and would ask that if the Board chooses
2 not to, then we would need to amend the fact sheet
3 or permit to articulate that reason, consistent
4 with Principle 3 and 4.

5 I'm going to talk a little bit about
6 the EPA's comment letters. They were mentioned in
7 the response to comments EPA filed --

8 CHAIRMAN ABARBANEL: Before you go
9 into that, I want to ask you a question.

10 It seems to me we've been struggling
11 -- I've heard today that we as concerned citizens
12 about water quality, have been struggling for at
13 least 25 years to find a way to achieve what we
14 have in mind as far as water quality. It hasn't
15 worked really well so we're trying different ways.
16 Region 4, Los Angeles, is trying one way. Our MS4
17 permit gives a lot of responsibility to the
18 individual Copermittees and asks them to develop
19 water quality improvement plans.

20 In 2018, do you anticipate that the
21 board -- I don't know what the Board composition
22 will be then -- are going to ask you for new water
23 quality improvement plans or relatively simple
24 modifications, which will not be on a new path but
25 a step along that path?

1 I'm trying to understand whether you
2 see this as a long-term issue in which you will be
3 deemed out of compliance or whether it's a
4 short-term issue from transition to a new method
5 that that we hope is much more effective.

6 MR. BARON: I think it's definitely a
7 long-term problem. I'm not a scientist, but I
8 believe that there have been improvements in the
9 water quality. And I think there have been
10 significant improvements in dry-weather
11 conditions. The problems still remain with
12 pollutants like bacteria and other wet-weather
13 conditions.

14 I think that there will be one
15 implementation plan -- now to the WQIP, that will
16 be hopefully approved in 2017, when the permit is
17 renewed, and it will be subject to modification as
18 folks go through an adaptive management process
19 and monitoring gives them the data they need to
20 adjust their programs.

21 So I think the problem itself is
22 long-term, based on science, technology, funding.
23 Municipalities like Orange County talk about
24 funding because we have to look at budgets. But I
25 think the real issue -- not the real issue but

1 subsequent to that is also how do you tackle
2 things like bacteria? What types of technology
3 are there for selenium when it's naturally
4 occurring?

5 So I think the problem is long-term.
6 The compliance issue is definitely short term in
7 the sense that this is a two, two-and-a-half-year
8 period that we fear we will be out of compliance
9 for. If we develop a rigorous plan, we'll be
10 deemed in compliance.

11 Overall I think it's a long-term
12 issue. I don't for foresee a new plan being
13 developed in 2018 unless they're so poorly
14 fashioned.

15 BOARD MEMBER MORALES: I hear it's
16 going to be a two, two-and-a-half-year period in
17 which you all will be out of compliance. You're
18 probably, today, not in compliance, correct?

19 MR. BARON: It was said on the record
20 at the May 2013 hearing that we were out of
21 compliance.

22 BOARD MEMBER MORALES: And how long
23 has that been?

24 MR. BARON: I would argue under the
25 federal Clean Water Act, you go through the best

1 management practice and that is NEP. So to the
2 extent that we're not meeting numeric numbers,
3 yes, that is a compliance issue. I see where
4 you're going. It's not necessarily --

5 BOARD MEMBER MORALES: Is this
6 anything new, is the basic question. It's being
7 pitched as "Going forward, we're going to be out
8 of compliance for two years." We're just
9 continuing what it is until compliance or the
10 government WQIP is --

11 MR. BARON: But there --

12 BOARD MEMBER MORALES: I don't want us
13 to fall into the trap of it being so easy to talk
14 about it in those terms. We all want the same
15 thing; I truly believe that.

16 MR. BARON: I think that -- I think
17 there was a perception in the storm water
18 community that if you were going through the
19 process and you were implementing your program,
20 the water boards would not enforce against you.

21 And then NRGCC versus L.A. County
22 litigation came about and turned that on its head.
23 It said the permits have receiving water
24 limitations in there, and therefore, the state has
25 determined that you're strictly liable with that

1 language and you view the permit like a contract.

2 From that point on, the storm water
3 community woke up and said "We thought we had sort
4 of compliance if we were making reasonable
5 progress."

6 I don't know if the question has been
7 "You're still out of compliance. You've been out
8 of compliance all this time." It's sort of a
9 pathway forward, and we can articulate that it is
10 impracticable to meet numbers. In some cases,
11 right now it is impossible to do so. So it isn't
12 reasonable under federal or even state law that
13 there shouldn't be some kind of alternative
14 compliance pathway built into that, to light a
15 fire underneath MS4s but also incentivize them to
16 continue these plans and programs.

17 So I think that strict liability -- I
18 don't mean to sound like a broken record after two
19 years -- but it doesn't really exist anywhere in
20 other parts of the law except with oil spills and
21 things of that nature.

22 The Clean Air Act and Clean Water Act,
23 that's not the way it was set up to be. I think
24 that's the aftermath of the L.A. litigation, and,
25 sort of, the storm water community is struggling

1 with that. And Jeremy is going to talk about some
2 of these issues. It is a very real issue for us.

3 I don't want to be perceived as
4 Chicken Little or "The sky is falling." "We're
5 gonna get sued." We're a very large county. We
6 get sued every other day. But in terms of its
7 impact on the storm water programs, I think --

8 CHAIRMAN ABARBANEL: You were here in
9 May 2013, and by what you said, you said you
10 weren't in compliance? What happened to you in
11 the last two-and-a-half years because of that?

12 MR. BARON: Jeremy is going to talk
13 about that after this.

14 CHAIRMAN ABARBANEL: I wasn't asking
15 for a review of lawsuits every other day. I
16 assume that's just business.

17 All right. Let's hear the answer.
18 Are you ready to turn over?

19 MR. BARON: I've got 30 more seconds.

20 So the major premise as to why not to
21 provide a compliance option, the way I read the
22 response to comments to letters from EPA
23 disapproving of this notion of compliance during
24 the development process. In my opinion, it's sort
25 of a ball conclusion. That bright line should be

1 drawn there. There's no citation to any federal
2 regulations because there aren't any. So EPA is
3 commenting as a federal preference. It's a state
4 issue, not a federal mandate. I want to point out
5 the State Board did not adopt the EPA's position.
6 It disregarded it. And EPA did not disapprove of
7 the L.A. permit.

8 So these letters carry a lot of weight
9 because it is the EPA, but at the same time,
10 legally speaking, this Board does not have to give
11 deference to them.

12 With that, I will conclude. Thank
13 you.

14 MR. JUNGREIS: Honorable chair, I'm
15 going to go quickly because I know you folks want
16 to go to lunch.

17 I think Ryan already covered it: The
18 EPA, one of the reasons they would have trouble
19 objecting is because fundamentally, you're still
20 operating under the MEP standard, and you've got
21 the case law Ryan pointed to.

22 EPA doesn't necessarily have to worry
23 about costs; they don't have to worry about
24 attainability. What they do worry about is "We
25 want to see massive improvements in water

1 quality." And that's great. We get that. We do,
2 too. But just take the EPA's guidance for what it
3 is. It's guidance; not a requirement.

4 So the question that's been asked by a
5 couple board members just now is, you've been out
6 of compliance for awhile, and the world has not
7 ended. Big deal. In fact, it really has been,
8 and it started to be a real (inaudible), and the
9 big issue is are we worried about getting sued?
10 Is a Clean Water Act lawsuit that big a deal?
11 The answer is yes. It's not just a Clean Water
12 Act lawsuit. The fact is that being out of
13 compliance is not something -- I represent Laguna
14 Beach and Dana Point. They care deeply about
15 water quality. It's part of their livelihoods.
16 The idea of being out of compliance, of
17 potentially criminal responsibility for not being
18 in compliance, that's a big deal. But the
19 specific issue of lawsuits -- so Laguna Beach was
20 sued by River Watch. Seems like they're picking
21 up the pace of their lawsuits. One of the things
22 they included in their amended complaint was
23 illegal discharges into the MS4 and discharges
24 from the MS4. So they have now brought storm
25 water and storm water compliance into the realm.

1 So what did that do? Strict liability
2 for non-storm-water discharges, demanded a
3 substantial infrastructure overhaul.

4 Now why is that significant? Each
5 city is going to have its own capital improvements
6 plan. They're going to prioritize. Does the
7 police department need new police cars? They
8 wanted every pipe over age four years, or whatever
9 it was, they've all got to be replaced within "X"
10 number of years. It gets into -- rather than the
11 regional board, who in many cases understands the
12 systems they're regulating, citizen's groups don't
13 necessarily.

14 If you look at the River Watch
15 complaints, they all tend to be cookie cutter.
16 Same approach. There's attorneys' fees. The
17 whole thing cost the City about \$400,000 for 16
18 months to settle it.

19 The bigger issues were staff time.
20 Tracey Inglebrits, who is here today from Laguna
21 Beach, it's practically all she did for a year.
22 Daycia, who you'll hear from later, it was half
23 the stuff she did. She's the water quality
24 administrator. It's a huge amount of staff time.

25 Not only that, the other issue is with

1 the regional board, you work things out. Regional
2 boards understand how to interface with cities.
3 Environmental groups, one of the risks with River
4 Watch or others is that you wind up having an
5 environmental group who doesn't understand your
6 city and is not accountability to the voters
7 running your public works department.

8 So that is the kind of thing that
9 troubles cities. It's one of the things the Board
10 should think about.

11 Other examples -- as I said, River
12 Watch is one group that seems to be getting more
13 advanced in their tactics. They're not going after
14 bad actors. They're going after cities that
15 presumably have a reputation of being pretty
16 conscientious: Monterey, Carlsbad, Laguna Beach.
17 They're not the top of the list of being bad
18 actors. They're all they serious about their
19 storm water programs.

20 And lately, the last three permits,
21 Laguna Beach, San Luis Obispo, in the last month,
22 alleging storm water violations and Whittier.
23 It's not just sewage spills.

24 So is it a risk? Absolutely. Maybe
25 from the regional board's perspective, you figure

1 out it's another enforcement. I think it's worked
2 really well historically over time, but in this
3 circumstance where everyone is deemed out of
4 compliance, it can cause some problems. Let me
5 talk about that.

6 I will say right now, the word
7 wrongful should be taken out. Lawsuits, there's a
8 time and place for citizens using the Clean Water
9 Act, no doubt.

10 Why is it bad for the regional board
11 not to provide interim compliance? One,
12 potentially, the settlement -- each individual
13 settlement is individual. You can have one
14 federal district judges who are very conservative,
15 some who are very liberal. You can go to the same
16 watershed and have very different results and it
17 makes it very tough to implement a water quality
18 improvement plan, to have the kind of synergistic
19 effect that gets you to water quality.

20 For Laguna Beach, it took up so much
21 time in order to deal with the lawsuit. With the
22 regional board, there's a set program. If you get
23 an NOV, you deal with it; it's a process. You
24 have to go to federal district court. The
25 \$400,000, that was one motion. If they had gone

1 to trial, who knows.

2 So it's incongruent with the
3 watershed-based approach that the board's
4 practical vision talks about.

5 One of the things that came up as well
6 as and I've heard suggested is a citizen's suit
7 comes up, the regional board can jump in and
8 intervene and -- because there is a provision in
9 the Clean Water Act that says if there is a
10 current enforced action, that a citizen's suit
11 cannot proceed. Unfortunately, it's not a good
12 fit here. What the regional board would need to
13 do is go to federal court and file a lawsuit.
14 There's case law, the California Sportsfishers
15 Association, which limits what regional boards can
16 do. Does a regional board, a state agency, want
17 to go to federal court and subject itself to the
18 authority of a federal court to begin with. So
19 could it work under some circumstances,
20 potentially. But it's definitely not a clean-cut
21 way of doing business.

22 What should the regional board do?
23 This regional board, by providing interim
24 compliance, you talk about a hammer hanging over
25 permittees' heads. "You're in compliance now, but

1 if you don't make that milestone, if you don't
2 provide everything in good faith you've suggested
3 you're going to do, it will be taken away from
4 you." And everybody is out of compliance right
5 now already. Everybody.

6 So I would suggest to the Board that,
7 one, this provides the Board with much greater
8 control and is a much greater incentive for people
9 to giddy up. "Hey, let's get this thing going.
10 We don't want to lose compliance."

11 One thing Ryan mentioned, and we
12 believe this to be true -- we checked through
13 other parts of the state. It appears the only
14 region not providing interim compliance, at least
15 considering it, is San Diego. It's really a
16 fairness issue. So I'd ask you to consider that.
17 If there was a particularly compelling reason to
18 do it differently here, I understand, but there
19 really isn't. It's a great incentive.

20 The idea of losing compliance if you
21 don't do everything you're supposed to do is a
22 huge disincentive to wait around and not do the
23 things we should be doing.

24 I talked about that incentivizing
25 planning. What the Board should do is what it's

1 already requiring, requiring data, requiring
2 deadlines, review prior quality water conditions
3 to the consultation panel, draft agreements with
4 watershed partners. Be part of the process.

5 So I will leave you with our proposed
6 language. We would also be amenable to the
7 proposed language Riverside County has provided.
8 Bottom line is, while we're going through this
9 process that shifts the burden to do what would
10 essentially be done with TMDLs by the state to the
11 Copermittees, allow us to be in compliance while
12 going through that process. If we fail, if we
13 don't do it properly, take it away from us.
14 That's the language we would propose.

15 With that, I will give one minute back
16 to Mary Anne.

17 BOARD MEMBER MORALES: Just a few
18 questions. Let me see if I have this correct:
19 Right now you're not in compliance. So what
20 you're asking is "Please revise this and deem us
21 in compliance while we were doing whatever we do
22 to come up with a WQIP."

23 So it's a change in status that you're
24 requesting to obtain -- one of the reasons is a
25 protection from -- of suits of this type. I think

1 as you mentioned, somebody presented those facts
2 to me, was that settlement. Was it -- what was
3 the main allegations? Did an attorney just throw
4 in an MS4 violation as one of 50 allegations?

5 So I'm not going to read into that
6 there was a lawsuit against Laguna Beach for a
7 sewage spill or something that came out of their
8 MS4 system, and they paid \$400,000 without more
9 facts.

10 MR. JUNGREIS: The actual payments
11 were several million dollars. I don't know what
12 the prime claims were.

13 BOARD MEMBER MORALES: Finally at
14 least there is one lawsuit that you all can point
15 to. I've been asking. Are you claiming this is
16 the sort of data breach (inaudible). But there
17 isn't this rush of lawsuits that have been filed
18 that I'm aware of. It's been years where -- I
19 wouldn't say years -- where conceivably you have
20 not been in compliance and they could have filed
21 these lawsuits.

22 I also, personally, think it would be
23 a risk for anybody that wanted to file a lawsuit
24 for -- against any of you all because it appears
25 to me that he you're diligently working at

1 developing (inaudible). And if they had to claim
2 to a judge -- it would be either declaratory
3 relief where they might say "change out all their
4 pipes." Basically, they'd be asking the judge
5 "Make them fix." You all could go to the judge
6 and say, "We have been diligently" -- before they
7 file their 60-day whatever -- "been in the process
8 of fixing this and quite likely there's a
9 possibility it gets fixed during dependency of
10 this lawsuit."

11 If there are organizations or
12 attorneys out there that are simply interested in
13 making a quick buck, they're going to think long
14 and hard because the judge will have the
15 discretion to tell them "Thank you, but you didn't
16 cause the cities to do what they are doing. It is
17 because of their own nature, their better angles.
18 They're in process. They're doing what everybody
19 would like them do."

20 And I believe that. I believe you all
21 are -- that's why I asked the question. I was not
22 surprised to hear you've been diligently starting
23 the process in advance.

24 Am I wrong that what you're requesting
25 is, basically, for us to vote and give a

1 protection that you don't currently have?

2 MR. JUNGREIS: I would couch it
3 somewhat differently, Mr. Morales -- Board Member
4 Morales. I'm sorry.

5 Two things, one is in 2013 --
6 certainly the cities I represent, Dana Point and
7 Laguna Beach, they've had all sorts of systems --
8 they thought they were in compliance. We all did.
9 It was certainly a surprise when we found out that
10 the receiving water limitations, the numbers that
11 were in -- from the basin plan of the permit --
12 that we were going to be held liable and deemed
13 out of compliance.

14 That's a real seat change for us.
15 We've been following this interim process, and we
16 thought we were improving. I can tell you what
17 we've done in the meantime. At least in the
18 cities of Laguna Beach and Dana Point, they've put
19 in massive amounts of dry weather diversions.
20 They're diverting 80, 90 percent of their nuisance
21 flows. They're all going to the sanitary sewer at
22 very large cost.

23 Are they doing things? Absolutely.
24 And I think a lot of cities are the same way. The
25 current approach seems troubling because it treats

1 everyone the same. It treats everyone as if
2 they're bad actors; they're all out of compliance.
3 Whereas, you've got some cities who really went
4 for it, and you have some who have done very
5 little.

6 In answer to your direct question, I
7 would say I don't think we thought we were out of
8 compliance, and we certainly want to be deemed in
9 compliance. If we're going to go forward and
10 spend, as a region, up to 2 billion dollars, we
11 should be doing it in partnership with the
12 regional board, and we should be doing it without
13 worrying about people suing us.

14 Just another point: And that was you
15 mentioned the complaints that were seen. I don't
16 know what drives River Watch. I can't speak to
17 their motivation. I can tell you their complaints
18 are nearly identical. So are there cities who
19 probably are legitimately sued? Absolutely. I
20 don't doubt it. I'm not sure that the ones I just
21 listed are legitimately sued. If you look at any
22 city or department, you're always going to find
23 noncompliance somewhere.

24 Anyway, I hope I answered your
25 question, sir.

1 CHAIRMAN ABARBANEL: It seems to me
2 that one conclusion, logical but not necessarily
3 practical discussion that we've heard from you and
4 others is that you're out of compliance, you ought
5 to take your water quality improvement plan, work
6 on it really hard and submit it in four months,
7 and not expose yourself for two years. Why don't
8 you do that?

9 MR. JUNGREIS: That goes back to a
10 point that Mr. McKibbon made from Riverside
11 County. These are the equivalent of TMDLs except
12 you're doing them for multiple pollutants. I sat
13 on a water quality improvement plan. The level of
14 complexity associated with trying to figure out
15 what are the sources and how do you reduce them
16 all? What are the projects you can actually
17 achieve without having undesirable environmental
18 effects? If you can do that in four months, I'd
19 say hire that consultant right away. But if you
20 want to do it right where you can actually
21 implement it, at the end you're confident you can
22 get the numbers you're told to hit, I would be
23 inclined to agree with Mr. McKibbon.

24 So your point is well taken. We
25 should hustle. We should go as fast as we can.

1 At the end of that plan, if we don't have
2 something scientifically defensible, what did we
3 achieve?

4 CHAIRMAN ABARBANEL: And my other is a
5 semi-question. If you're asking the board to
6 identify something as being compliant, when
7 everybody agrees no one is compliant, doesn't that
8 undercut the moral authority of this Board.

9 MR. JUNGREIS: I would argue it
10 doesn't because I would argue that we -- at least
11 municipalities because the way we are treated
12 under the Clean Water Act, we shouldn't be -- I
13 noticed we would be deemed out of compliance. We
14 heard Mr. Gibson acknowledge he feels differently
15 about different watersheds, but at least in some
16 there's places where of re-evaluation of numbers
17 may be appropriate.

18 Do I think you lose moral authority?
19 I don't. The state board didn't seem to think so.
20 The other regional boards don't seem to think so.
21 Fundamentally, I don't think you lose moral
22 authority because what you gain in the process is
23 the ability to ensure with about as great a
24 leverage tool as you could ever get by ensuring
25 people have the chance of losing that compliance.

1 I don't think you loss any moral authority. I
2 understand where you're coming from, but I don't
3 think you do. I don't think the public would
4 perceive it that way.

5 MS. SKORPANICH: Could I add to that
6 answer very quickly?

7 How to define compliance is a policy
8 matter that's in your hands. So it is within your
9 purview and your judgment to decide how to define
10 compliance, just as the State Board did with the
11 precedential order. I don't think you lose any
12 moral authority by how you choose to resolve that
13 policy question.

14 CHAIRMAN ABARBANEL: Thank you.

15 It's 12:25. We're going to break for
16 lunch and come back with the cities of Laguna
17 Beach and and Dana Point.

18 (Lunch recess taken.)

19 CHAIRMAN ABARBANEL: The regional
20 Board's permit is a matter of great importance to
21 the City. Specifically, we are concerned the
22 permit, as currently drafted, will provide no
23 compliance to the City during the interim period
24 prior the adoption of the water quality
25 improvement plan.

1 The Laguna Beach city council is fully
2 committed to pursuing improvements in water
3 quality. As one of the many examples of the
4 City's strong commitment to improving water
5 quality, will the City has installed 25 water
6 diversion units that divert approximately 83
7 percent of our entire watershed of the city's
8 drainage area.

9 This program has consistently earned
10 the City a summer dry weather report card of a
11 grade of A by Heal The Bay at all of our beaches
12 within the City. We are proud of that
13 accomplishment; however, we're concerned the
14 permit proposed for approval today will actually
15 frustrate others improvement programs in the
16 future. Our specific concerns and recommendations
17 are as follows:

18 Number one, the permit should provide
19 for interim compliance while the City develops a
20 water quality improvement plan for southern Orange
21 County. We think the regional board's mandate to
22 develop the WQIP has positive attributes. To be
23 successful in improving water quality to the
24 maximum extent practicable within the city, the
25 WQIP needs to be a deliberate, scientifically

1 rigorous collaborative effort between all parties
2 and interested stakeholders that recognize the
3 need for interim compliance and for long-term
4 compliance.

5 Secondly, the permit should clarify
6 that implementation of the City's elicit
7 prevention and detection program constitutes
8 compliance even when unauthorized discharges enter
9 the City's MS4. As Orange County presented, they
10 illustrated perhaps River Watch and other
11 environmental organizations are going after cities
12 for discharges into the MS4 that may occur
13 notwithstanding a city's full and rigorous
14 implementation of its elicit discharge and
15 protection program. The proposed errata changes
16 in the staff report gave a response to the City's
17 prior comments are a step in the right direction
18 but she should be given the force of the law by
19 placement in Section E.2 of the permit itself.

20 Accordingly the City asks the Board
21 revise the regional permit to eliminate any
22 inference of strict liability where the City fully
23 implements it's elicit program by adding the
24 clarifying language requested by our legal counsel
25 to Section E.2 of the permit.

1 Thank you for your consideration of
2 the City's comments. We know the regional board's
3 task is not easy, and the city of Laguna Beach
4 appreciates what this board is doing a balanced
5 need -- is doing to balance needed water quality
6 improvement with the realities of managing a
7 complex municipal storm drain program.

8 To that, I conclude and state that our
9 city is extremely comitted to water quality. I
10 think no one can argue that as our community
11 demands it. Our city council expects it, and we
12 work every single day to the maximum extent
13 practical.

14 CHAIRMAN ABARBANEL: Do you agree with
15 an earlier speaker that you are out of compliance?

16 UNIDENTIFIED SPEAKER: I agree with
17 Mary Ann Skorpanich's response. I think that's a
18 bigger picture. I think we run under a maximum
19 extent practical on a daily basis. From a
20 boots-on-the-ground perspective, which is where we
21 are from a very small community, that's all we
22 have.

23 If I carry over my six minutes, it's
24 going to be Dana Point and Laguna Beach together,
25 if that's okay.

1 BOARD MEMBER STRAWN: Together you
2 have 20 minutes. We will not stand at the
3 boundary between your cities and tell you how to
4 do it.

5 MR. FALLER: My name is Brad Faller.
6 I'm the director of public works for the City of
7 Dana Point. Thank you very much for allowing us
8 to speak today. Both our Dana Point mayor and our
9 South Coast Water District board member that does
10 our water sewer district, Mr. Bill Green spoke
11 this morning. We are a team. Many cities have
12 those entities in one city, but we have both
13 different entities working together.

14 Many beach cities are working hard to
15 improve water quality. Clean beaches equals happy
16 citizens and visitors. So we're already motivated
17 to meet the needs of our constituents Dana Point
18 has invested heavily in storm water catch basin
19 filters on public streets, we installed 18
20 diversions to help control dry-weather runoff, and
21 we're the first to use ozone treatment to kill
22 pathogens at Salt Creek and North Creek. The only
23 place where we have untreated runoff during the
24 dry season that goes into the ocean is San Juan
25 Creek. We've banned Styrofoam and plastic bags in

1 town. We have reduced the cities potable water
2 consumption by 40 percent this summer, well above
3 the 20 percent goal. Three beaches in South
4 Orange County have been delisted through our
5 efforts. We haven't met the final goal yet, it's
6 in the basin plan. Hopefully this tells you we're
7 working hard, and we are making progress.

8 Moving forward with your concern of
9 the possible lack of interim compliance during the
10 WQIP development and the initial cost between 1.6
11 and 2.1 billion to reach effective compliance,
12 you're really talking a difference between us
13 spending, over the last 20 years, 20 billion or 30
14 billion, you're really taking a magnitude up as we
15 move forward to hundreds of millions of dollars.
16 It's daunting for us. It's got everyone's
17 attention.

18 Regarding interim compliance, what
19 happened in Laguna Beach has been a wakeup call
20 for all of us. Laguna also takes its
21 environmental responsibilities very seriously and
22 has a robust water quality program, so when they
23 were sued by River Watch, it surprised us, and it
24 is great cause for concern. If you look at River
25 Watch's website, they have 8 cities in 2015 that

1 they're litigating or bringing suit against.

2 So what we see that's happened, the
3 change that start with the NRDC has now made it
4 relatively easy to say "You're not in compliance."

5 When we see great cities getting hit,
6 that's a source of concern. We're trying very
7 hard to meet the goals of the Board as well as the
8 requirements of our citizens?

9 Please give us the opportunity to
10 develop a water quality improvement plan without
11 having to worry about being sued while developing
12 that plan. We think the focus needs to be on
13 developing the water quality improvement plans,
14 not fighting lawsuits. So why penalize the good
15 performers with opportunistic lawsuits.

16 I'm asking for your help in making
17 sure our taxpayers' dollars are going to effective
18 and beneficial water quality improvements.

19 We understand the Board's need for
20 leveraging bad performers. But what we're saying
21 is, try and realize that you don't penalize the
22 good with the bad. You have to make that
23 distinction. Where you have bad performers, we're
24 suggesting that you put into the permit that says,
25 "If you aren't producing the plan, and you aren't

1 making progress over the next few years, then you
2 aren't meeting those requirements."

3 And remember that this compliance
4 protection does not include compliance enforcement
5 for other areas, such as new development,
6 construction and existing development. The Board
7 staff still has the ability to enforce compliance
8 there. And, also, we're not asking that you take
9 out, for example, A.3(a) in the permit, which
10 still requires, and I quote, "pollutants in storm
11 water discharged from MS4s must be reduced to the
12 maximum extent practicable."

13 So we're not given a pass. What we're
14 asking you to do is make the choices. Help us
15 that are trying to help you, and you still have
16 the stick if you need it for somebody who's not
17 meeting the requirements.

18 So we're appealing to the Board to
19 adjust the permit interim compliance protection
20 for both storm water and non-storm-water
21 discharges similar to what the L.A. Board and
22 Santa Ana Board are doing.

23 Thank you very much for allowing me
24 the time to comment. And to Mr. Strawn's query
25 earlier, we very much think that the

1 administrative requirements in the permit have
2 been reduced, and that's been helpful.

3 BOARD MEMBER STRAWN: Can I get a card
4 from you when you get a chance? Just for the
5 record, to make sure she gets your name spelled
6 right.

7 CHAIRMAN ABARBANEL: Mr. Green from
8 South Coast Water District.

9 MR. GREEN: Well, thank you. This
10 morning I had to rush through my three minutes'
11 presentation, and I felt a little like the Federal
12 Express presenter this morning. So I'm here.
13 This will be short. I appreciate your time.

14 We really feel at South Coast Water
15 District, as well as at the City worked very hard
16 in the area to do our best for water quality. In
17 fact, South Coast Water District adopted, a few
18 years ago, a zero tolerance for any kind of spills
19 in your district, and I want to believe we've done
20 a very good job of maintaining that goal.

21 My message here is, please consider
22 providing -- or providing for the interim
23 compliance, which seems to be reasonable and fair.
24 Make it more like the other regions in the area.

25 So with this closing, I ask,

1 respectfully, the Board would be mindful of
2 setting the water quality improvement policies,
3 and do the right thing for the tentative order.

4 Thank you so much.

5 CHAIRMAN ABARBANEL: Mr. Green, may I
6 ask you a question?

7 We've learned this morning that there
8 are really two times where the water quality
9 improvement plans have deadlines: One is their
10 submission, and one is their acceptance by the
11 Board. Which period do you have in mind for what
12 you call "interim compliance"?

13 MR. GREEN: I would say from now until
14 the final completion of the -- the final WQIP is
15 completed; that would be the period. I can't
16 dictate the timeframe I heard Mr. McKibbon mention
17 up to 40 months might be a reasonable time.

18 CHAIRMAN ABARBANEL: I thought that
19 was actually an extension of the first submission
20 of the plan, additional time.

21 MR. GREEN: I can't answer that
22 question for him. Sorry about that.

23 CHAIRMAN ABARBANEL: Thank you.

24 MR. GREEN: But I think perhaps Jerry
25 might have an answer for you.

1 I'd be happy to answer. I think the
2 Board has a great deal of discretion as to when
3 they would want to start interim compliance. I
4 think, as of today -- you don't have to start from
5 scratch. You can look at other models from around
6 the state and see how they've done it.

7 I think from the approval of the
8 permit would be fair, but I think look at the
9 other processes that have been put out there by
10 the other Boards, and that may provide some
11 guidance, as well.

12 Does that answer your question, sir?

13 CHAIRMAN ABARBANEL: Not really, but
14 it's okay.

15 UNIDENTIFIED SPEAKER: Okay. At this
16 point, we have a short presentation, a short
17 PowerPoint, if we can -- I'm going to go through
18 this very quickly. Just a couple quick points.

19 So just for a technical comment, this
20 was raised by Dana Point: They've been pretty
21 active participants because it is so important.
22 This slide is meant to illustrate the importance
23 of why it's important to have clear language in
24 the permit itself in 2010, so there's an issue
25 about -- apparently the response to comments, and

1 this wasn't originally an issue, but in response
2 to comments, it indicates d-listed water bodies
3 are still going to have to have these BLRPs and
4 CLRPs.

5 That was contrary to what had been the
6 Board's direction in 2010, and there was some
7 ambiguity that might be problematic. We'd like
8 the Board to address that. It should be a pretty
9 minor issue and just clarify -- we can look at the
10 transcript from 2010 as to what the Board's
11 direction was. But also, it illustrates the
12 importance of why the next thing I'm going to ask
13 for for Laguna Beach is so important. The issue
14 for Laguna Beach, one of the allegations that
15 River Watch made in their complaint is,
16 essentially, that if third-party spills or your
17 own spills make it's into your MS4, you own it and
18 you're liable.

19 So it would be helpful to have some
20 clarification that is not the case. With the
21 language we requested would provide that. Now,
22 staff has been helpful, and has met with Laguna
23 Beach and tried to address some of the concerns.
24 So it just needs to be tweaked a little bit. I'm
25 asking to change the language of the -- it would

1 be as amended it would read "where a Copermittee
2 is implementing requirements" it would clarify if
3 you're implementing your program fully, you're in
4 compliance. If something gets in it, and you're
5 doing everything reasonable under the permit to
6 prevent spills, you're in compliance and shouldn't
7 be held liable. Otherwise it requires a prior
8 finding by the Board that make it's more
9 difficult.

10 BOARD MEMBER MORALES: Who gets to
11 decide?

12 UNIDENTIFIED SPEAKER: Well, it's
13 unclear at this point. You have a requirement
14 under E.2 to do a variety of things under Section
15 E.2 to carry out the requirements of your elicited
16 detection.

17 BOARD MEMBER MORALES: If the San
18 Diego Water Board -- currently it's the water
19 board or probably staff that makes the finding,
20 the determination. If we revise it to say "when
21 you're in compliance," that's fine, but who
22 decides when you're in compliance or when you're
23 not in compliance.

24 UNIDENTIFIED SPEAKER: Under the
25 approach we've asked for, staff would essentially

1 make the finding. They would be deeming you in
2 compliance. Arguably -- this is in the staff
3 report, so it's meant to provide guidance. It
4 provides additional verification you don't need
5 the Board to actually find someone is fully
6 implementing their program. That's one area where
7 clarification would be helpful.

8 CHAIRMAN ABARBANEL: I was going to
9 ask you about a historical example in this region.
10 The City of San Diego runs a pump station at the
11 edge of Penasquitos Lagoon, which is near Torrey
12 Pines Beach State Park. That pump station is runs
13 when electricity is delivered to it by SDG&E.
14 There was a ground out or power outage in which
15 SDG&E did not deliver power and there was a spill.
16 Everybody was in compliance, but there was a spill
17 and somebody was held responsible.

18 UNIDENTIFIED SPEAKER: That's a great
19 point. I guess my response to that would be did
20 they have backup generators in place? Did they
21 have a system in place to prevent spills? I don't
22 know anything about the scenario.

23 CHAIRMAN ABARBANEL: Of course. Only
24 to suggest the unexpected may happen. You could
25 be trying your best and still this went into the

1 lagoon rather than the MS4 system. These things
2 happen. And I only throw that into the
3 conversation.

4 UNIDENTIFIED SPEAKER: It's a good
5 point. The point is raised because of the issue.
6 Laguna Beach wasn't frequently appearing before
7 this Board before because they were busy trying to
8 improve water quality. It's been a seat change.
9 They haven't wanted to get into this business
10 they've been dragged into it. Now that they're
11 here, it makes sense to -- to the extent they do
12 what they're supposed to do in the future, they
13 don't wind up in court again. That's what this
14 effort is, an effort to make minor tweaks to help
15 address the concerns. Pleasure of the board,
16 obviously, but that would be our recommendation.
17 The staff report is helpful but I think that
18 clarification would be beneficial. Also similar
19 clarification to the permit itself.

20 I wanted -- I'm not going to spend
21 much time -- good, my time is back on.

22 This is the question raised by Board
23 Member Morales about aren't you already out of
24 compliance? Haven't you been out of compliance
25 for a couple years? This summarizes the responses

1 that Mr. Baron. It's really a question of are we
2 out of compliance and we wish for the privilege of
3 being in compliance, or are we already
4 implementing programs trying to do our best with
5 the interim process and then a regulatory change
6 to put us in a posture where everybody is deemed
7 to be out of compliance. If everybody is in
8 violation of the Clean Water Act, how do you tell
9 the good from the bad?

10 Anyway, so I think those are just the
11 points I wanted to make. I think Ryan made most
12 of them. It's very expensive. Dana Point,
13 regardless of what you do today, Dana Point,
14 Laguna Beach, the people I'm here on behalf of,
15 they're going to pull out the stops to improve
16 water quality. It's important to them, and it
17 will continue to be. Their citizens demand it.
18 But I think it will -- first of all, it's the fair
19 thing to do but also not having to worry about
20 "are we going to have to devote one person here to
21 dealing with" -- I don't want to malign
22 environmental groups here, either. They're good
23 people. They're trying to do the right thing,
24 too. I get that. But it does make it difficult
25 to try to get the mission accomplished when you

1 had things that went down in Laguna Beach.

2 I think that interim compliance -- the
3 task you've given us is very steep. We've got to
4 come up with a lot of money. It will be a big
5 step in the right direction if we have interim.
6 If I could reserve my time -- if you'll permit me
7 to do that.

8 CHAIRMAN ABARBANEL: Does that end the
9 presentations by the cities of Laguna Beach and
10 Dana Point?

11 MR. BARON: Yes. We're good to go.

12 CHAIRMAN ABARBANEL: Before we move
13 on, then, to the San Diego county permittees who
14 have three minutes, I would like to ask a question
15 of Mr. Chiu.

16 CHAIRMAN ABARBANEL: We have heard
17 that the Copermittees have two years to submit for
18 the inspection of the board, water quality
19 improvement plans. When does that two years
20 begin?

21 MR. CHIU: Well, it varies, depending
22 on the group, so depends on when they come into
23 the permit, but we set an effective date that is
24 50 days after you adopt the permit or adopt the
25 amendment to the permit. Orange County when they

1 came in February, their effective date became two
2 years from April 1st.

3 CHAIRMAN ABARBANEL: April 1st, 2017.

4 MR. CHIU: For Riverside county
5 Copermittees, the effective date would be January
6 7.

7 CHAIRMAN ABARBANEL: 2018.

8 MR. CHIU: January 7, 2018.

9 CHAIRMAN ABARBANEL: San Diego?

10 MR. CHIU: San Diego went through
11 their water quality improvement plan, and they
12 submitted theirs back in June 26th of this year.

13 CHAIRMAN ABARBANEL: San Diego county.

14 MR. VAN RYAN: Good afternoon, members
15 of the Board. I'm John van Ryan. I'm with the
16 County of San Diego. I'm here to represent the 21
17 Copermittees of the San Diego region portion of
18 the permit. I'm going to be speaking exclusively
19 to the land development requirements of the permit
20 that are in Section E.4.

21 CHAIRMAN ABARBANEL: Before you do
22 that and without loss of time, your time San Diego
23 county Copermittees went through a two-year
24 process to develop the water quality improvement
25 plans. During that time, you had no alternative

1 compliance capabilities; is that right -- interim
2 compliance protection; is that correct?

3 MR. VAN RYAN: That's my
4 understanding.

5 CHAIRMAN ABARBANEL: What happened?

6 MR. VAN RYAN: I'm not the best person
7 to ask. I don't deal with that portion of the
8 program.

9 CHAIRMAN ABARBANEL: Is there somebody
10 who can answer?

11 UNIDENTIFIED SPEAKER: John is dealing
12 with the development issues.

13 CHAIRMAN ABARBANEL: Is it a long
14 answer, or is it nothing?

15 UNIDENTIFIED SPEAKER: We were very
16 busy at work trying to meet the requirements of
17 the permit. We were doing several plans at the
18 same time. I think we worked very hard and
19 diligently.

20 CHAIRMAN ABARBANEL: During that time
21 when you were exposed and potentially not in
22 compliance with the new MS4 permit, did anything
23 unusual happen to you?

24 UNIDENTIFIED SPEAKER: We continued
25 running our program, sir.

1 MR. VAN RYAN: So behind you is a
2 summary of the issues I'll be speaking to. I have
3 a handout that summarizes what we'll be asking
4 for.

5 So basically, we've got three issues I
6 want to address. First are essentially support.
7 Issue A was support for the fact that staff in the
8 November 4th errata clarified an inconsistency in
9 the dates for the effective date of the BMP design
10 manual, and the updates to that. Thanks to staff
11 for fixing that. We agree with the fix.

12 B, we also support staff's stated
13 intent to further extend the date of the BMP
14 design manual for San Diego County permittees by
15 90 days from the current effective date of
16 December 24th of this year.

17 As I'll talk about in a little while,
18 that's something that's only in the response to
19 comment. That's not part of this permit and
20 that's not part of this adoption. We'll have some
21 thoughts how we prefer to see that move forward.
22 The rest of these are the issues I'll be
23 concentrating on for the rest of this
24 presentation. They primarily deal with time, and
25 the time needed to complete updates.

1 The first is the permit should
2 generally allow the extension of BMP design manual
3 effective date by 180 days instead of 90 days
4 anytime new or modified land development
5 requirements are adopted, which would be the case
6 today.

7 We specifically would like to see the
8 proposed extensions that are in the tentative
9 order today. The effective dates for those to
10 actually be June 21st, so in other words, 180 days
11 on top of what's already being suggested by staff
12 in response to the comments.

13 So it would give us a full 180 days
14 beyond the existing December 24th effective date.

15 So number one, first of all, we just
16 want to see when new requirements are brought in
17 after the initial permit, which is the case now,
18 that we have enough time to do what we need to do
19 to bring those into our programs and implement
20 them. What we're suggesting here is a full 180
21 days when new requirements come in, instead of 90,
22 which is currently in the draft. The simple edit
23 we're suggesting is the bottom of the slide.
24 Simply change F.2(b)(4) to be 180 days instead of
25 90 days. Simple edit.

1 So anytime we have to make
2 modifications to our BMP design manual, a whole
3 lot of other things have to go along with that.
4 This slide breaks it up into three major pieces.
5 We have updates we have to complete. We have a
6 public process we have to go through, and that's
7 fairly well defined. And then we have to actually
8 work with applicants to identify where those
9 changes are going to be applicable, whether it's
10 new applicants or applicants with projects in the
11 pipeline, to work with them to make sure the
12 correct requirements are being applied.

13 Under the completion of updates, the
14 critical things for us are updates to the BMP
15 design manual. The lion's share of BMP design
16 manual updates have been completed over the last
17 two years.

18 So, arguably, the new things that are
19 being brought in under this tentative order are,
20 in comparison, not a lot. Keep in mind we have to
21 go through the same process. The critical thing
22 here -- any of these things can take months,
23 sometimes years depending on what it is. We can
24 try to keep the timeframes as collapsed as
25 possible, but for the county of San Diego, as I'm

1 used to illustrate, our board updates take at a
2 minimum, if all the dates lined up, for us to
3 basically do our administrative process, get an
4 ordinance update through our administrative
5 process to our board, for the first hearing,
6 second hearing and then 30 days for that to be
7 effective. In the best of all possible scenarios,
8 that is 90 days, which is currently provided for
9 updates.

10 We have to update our watershed
11 protection ordinance to implement the requirements
12 of the BMP design manual. I can't speak for all
13 Copermittees, but some will have the same process,
14 some will have more process. Realistically, if
15 we're being given 90 days to do it all, and this
16 one piece of it ignores the fact we need to reach
17 out to industry, work with people, develop the
18 requirements up front, it's just enough to get us
19 to squeak in.

20 We're certainly not concerned if we're
21 a few weeks behind the deadline, staff is going to
22 come after us. That's not the case. But we're
23 really concerned this isn't a realistic timeframe.
24 We're not going to be squeaking in. We're going
25 to be much behind it. But that's generally what

1 we have to go through.

2 Our second request is -- so in
3 addition to making the general extension of design
4 manual effective dates to 180 days, in this
5 particular case, for the changes that are imposed
6 through today's hearing, we would like the
7 extension date to be 90 days, in addition to what
8 staff suggested in the response to comments. An
9 additional 90 days to what they're suggesting
10 would be a total of 180 days from the current
11 December 24 date. That would take it to June 21,
12 2016.

13 I'm providing specific edits at the
14 bottom of this slide. All you would really be
15 doing here is putting a sentence at the end that
16 says "For these specific updates, San Diego
17 Copermittes, the effective date for these
18 requirements will be June 21, 2016" and this
19 slight edit up in the previous sentence to clarify
20 you have the authority to do that. We think
21 that's fair. Let me go through why that's
22 necessary at this point.

23 So these are the major things -- I'm
24 not going to go through -- these are the major
25 things in the land development requirements right

1 now that effect what we have to implement. PDP
2 categories have been modified. The definition of
3 redevelopment has been modified, and more
4 importantly, grandfathering or prior lawful
5 approval provisions have been added.

6 Going back to the timeline I just
7 described, we need that 90-plus days to get
8 through the minimum administrative and adoptive
9 process for our ordinances.

10 I want to go back to grandfathering
11 provisions here. These are important provisions.
12 We're very happy with staff for where we got with
13 these. We got a reasonable set of provisions
14 moving forward. These are much more useful to the
15 Riverside and Orange County Copermittees. We have
16 very little time to work with applicants to
17 utilize them.

18 When I worked on this process, Board
19 Member Morales was there, and I think you'll
20 recall one of the things you said when we brought
21 up the issue of timing was you'd have staff look
22 into it. I think staff did will look into it, but
23 unfortunately we didn't come up with anything
24 other than the current schedule. It's not enough
25 to take advantage of these new grandfather

1 provisions. If we were provided the additional 90
2 days that are we're suggesting on top of what
3 staff is suggesting, we would be satisfied that's
4 enough to do that. I won't belabor that issue
5 except that was an outstanding issue for us.

6 CHAIRMAN ABARBANEL: Pardon me. I
7 have a question.

8 These changes to your ordinances and
9 the design manual must occur every time the MS4
10 permit changes?

11 MR. VAN RYAN: Yes.

12 CHAIRMAN ABARBANEL: The MS4 permit,
13 as we learned from executive officer, has been
14 issued since 1990. And this is the fifth. You've
15 done this four times before in the past?

16 MR. VAN RYAN: This is the second
17 time. The BMP design manual revision was called
18 Sue Sump and Lass [phonetic] manual, and why
19 bother spelling it out.

20 It was basically a change in title.
21 What the permit required this time because there
22 were significant changes in the land development
23 requirements you said you guys have a certain
24 period of time to update those after the board
25 accepts those updates, you have half a year to

1 implement them.

2 CHAIRMAN ABARBANEL: Under the
3 assumption that the 2018 MS4 permit will be less
4 of a big change from the previous permit --
5 present one, would you accept the fact that this
6 is a necessity only this time and not in the
7 future?

8 MR. VAN RYAN: If I agreed with that
9 assumption. We've assumed it every time the
10 permit has been reissued and we've been wrong.
11 I'm not sure that would be the case.

12 So, again, going back to where we are
13 right now with this particular iteration of the
14 land development requirements, you saw the things
15 that are changing. To go back to the slide you
16 saw a minute ago, the updates are relevant, so we
17 need at least the 90 days plus to get the
18 ordinance updates and all these other things that
19 need to be done.

20 In addition, there are other
21 outstanding issues that we haven't completed yet
22 at this point. I want to talk about critical
23 coarse sediment yield. These are requirements
24 that were in the 2013 permit when it was adopted.

25 They think we are hot and heavy into

1 really trying to come up with reasonable
2 guidelines for developers to implement. As it
3 turns out, they're much, much harder than what we
4 had anticipated. I know the first reaction to
5 this particular thing is, "you had two years."
6 But keep in mind for the first year of this
7 permit, we were doing something called the
8 Watershed Management Area Analysis, where we were
9 figuring out even how these things applied. We
10 didn't know until a year into it the gravity of
11 what these requirements were going to be imposing.

12 In addition to that, the second year,
13 we were doing things like starting to develop
14 offsite alternative compliance programs. We
15 updated our terms. We updated all of our
16 programs. There's a lot of stuff going on here.
17 The reality is this is where we are right now:
18 We're getting closer, but we're not there yet, and
19 if we don't extend the effective date on these,
20 we're going to be in a position of not having the
21 right requirements in place to be able to
22 implement them.

23 What I want to point out to you is,
24 we're committed and well into the process of
25 developing these requirements. The county and the

1 city of San Diego are working cooperatively right
2 now to develop guidance.

3 Keep in mind, this is not straight
4 engineering; this is environmental science. We're
5 being asked to do really new stuff and it's more
6 than you can simply rely on the applicants to turn
7 in a proposed design and review it to see if we
8 got it right.

9 The major issues on the left side of
10 this slide, these are the things we will have to
11 develop. I purposely blurred that diagram so it
12 wouldn't evoke any discussion. It's a flowchart
13 to illustrate what the process is applicants will
14 go through once we figure out how to guide them
15 through all these decision points.

16 We are making progress. I wanted you
17 to see that. It shows we've done something. What
18 we are committing to right now, what we've already
19 started to initiate, the city and county together
20 are taking the draft content that we developed so
21 far, we're are going to put it through a public
22 process. First, we're putting together a
23 technical advisory committee that will include
24 your staff, will include somebody from the
25 industry, NGOs. It will include secular people

1 that need to be okay with this stuff.

2 We're thinking two to three tack
3 meetings, and we're thinking a public workshop
4 sometime in April. This, I think, is a fairly
5 aggressive schedule, but we think that we can do
6 it. If we were to do that, we would basically be
7 final guidance by late May. What we asked for is
8 an extension of the effective date that would take
9 us a little bit into June. So with that, we feel
10 like we could be there. It's not going to be
11 perfect but realize what we need to do before we
12 start releasing guidelines and requirements on
13 developers is, we have to have methods that are
14 fully baked. They have to be basically
15 technically and legally defensible.

16 And to come back to Mr. Chiu's point
17 from earlier, they have to be able to support not
18 action-oriented implementation but
19 results-oriented implementation. And the danger
20 we run if we don't work out these methodologies
21 and they're not scientifically valid, is that all
22 we're doing is basically putting people through a
23 routine of generating results rather than what the
24 permit asked for, which is no-net impact to
25 receiving waters.

1 That's what we're asking for.

2 What we would prefer, in terms of how
3 to get the extension, would be that you just make
4 the amendments to the tentative order today. Just
5 put that date in there as we're asking for it. So
6 we provided the language so the staff doesn't have
7 to write it.

8 If you can't do that or disagree, but
9 you do agree that the effective date should be
10 extended to some date, whatever you agree with,
11 then please, as part of the public record for this
12 proceeding, direct your executive officer to make
13 that change so that we know in leaving this area
14 what we're working with.

15 That's all. Thank you.

16 CHAIRMAN ABARBANEL: San Diego has
17 six-and-a-half more minutes.

18 MS. WEBER: I do have a question.

19 CHAIRMAN ABARBANEL: Go ahead.

20 MS. WEBER: Thank you. I'm JoAnn
21 Weber, planning and project manager for the County
22 of San Diego, and I also speak on behalf the San
23 Diego's Copermittees.

24 The Copermittees, we appreciate the
25 Regional Board has included additional language to

1 have the ability to have this alternative
2 compliance option. We thank the staff for several
3 changes made in the errata sheet, which make it a
4 more implemental option. Despite these
5 (unintelligible), the San Diego Copermittees are
6 concerned that the specific requirements for
7 annual milestones will still be overly
8 constrictive and burdensome. Each Copermittee
9 could potentially need to establish and track
10 annual milestones for multiple goals within
11 multiple water bodies in each of their Watershed
12 Management areas which could result in dozens of
13 annual milestones.

14 The Copermittees recognize that
15 milestones would benefit accountability for
16 working toward their goals. These specific
17 milestones would be more meaningful if they would
18 focus on priority water quality conditions and
19 were actually based on a permit cycle, as they
20 currently are in our water quality statement plan,
21 so that would be one milestone per five-year
22 permit term, period, from each water body,
23 including combinations to be covered under the
24 alternative compliance pathway.

25 The San Diego Copermittees are

1 requesting the Regional Board to consider
2 modifications to the language to restructure this
3 annual milestone requirement to make it more
4 meaningful. And I have a draft errata sheet that
5 I can hand out to your staff, and it's exactly the
6 same thing that they proposed in our September 14
7 comment letter.

8 Thank you.

9 BOARD MEMBER OLSON: I just wanted to
10 ask a question.

11 So for your group, the interim
12 compliance is not an issue?

13 UNIDENTIFIED SPEAKER: We did not have
14 that option on the table when we did our water
15 quality improvement plans. That's just something
16 we're coming in now.

17 BOARD MEMBER OLSON: So you didn't
18 have any suits or -- I mean, that's what I kind of
19 understood you to say in relationship to the
20 Chair's question.

21 UNIDENTIFIED SPEAKER: That's correct.

22 BOARD MEMBER OLSON: You said, well,
23 you were out of compliance, or you --

24 UNIDENTIFIED SPEAKER: None that I
25 know of.

1 BOARD MEMBER OLSON: Okay. Thank you
2 very much.

3 MR. WILE: Good afternoon, Board
4 Chairman, Board member. My name is Clint Wile.
5 I'm with the City of San Diego Transportation and
6 Storm Water Department. I'm the program manager
7 for our Watershed Planning Group. We oversaw the
8 development and took over the lead for three of
9 the new water quality improvement plans here in
10 San Diego, and we participated in another three.
11 So the last two-and-a-half years I have the scars
12 to show putting these plans together. But I think
13 they're good plans.

14 Let me say for the record that the
15 city of San Diego, our overall goal is
16 improvements to water quality, and we think the
17 WQIPs are going to be our roadmap on how we are
18 collectively here going to get there down the
19 road.

20 I also want to speak here, generally,
21 in support of the permit amendment but offer a few
22 suggestions for some modifications that I think
23 and the City thinks will make implementation of
24 water quality plant more effective, more
25 achievable and will result in faster and better

1 improvements to water quality.

2 I'd also like to quickly thank Board
3 staff for their efforts in working with the
4 Copermittees over the past two years on the
5 development of the of Water Quality Improvement
6 Plans and through this entire permit amendment
7 process.

8 First, the City of San Diego supports
9 inclusion of the prior lawful approval definition
10 in the permit. Again, we want to acknowledge and
11 thank Board staff efforts in working with us, and
12 other stakeholders, through a public participation
13 workshop that led to developing this definition.

14 We support the San Diego program
15 chief's comments as presented by the County of San
16 Diego related to changing prohibition and
17 limitations compliance option in the annual
18 milestone requirement to one milestone per permit
19 term.

20 I wanted to further elaborate on what
21 JoAnn mentioned about why I think that's important
22 from a planner in a city that has to implement
23 these water quality improvement plans and I think
24 with the importance we can see here. The City
25 supports the concept of milestones. It's never

1 that we didn't agree with them, and we support
2 that for many reasons. They provide opportunity
3 to achieve the outcomes, and they also provide
4 accountability and transparency. They also help
5 me communicate to my management and city leaders
6 budget requests that we need more funding to
7 improve water quality. And so to have milestones
8 and numerical provides that accountability and
9 that justification for increased budget requests
10 that we all know we need to meet these challenging
11 water quality requirements.

12 However, the annual milestones do not
13 allow the City and the other Copermittees and the
14 MS4s in this room enough time to reprogram
15 activities and secure those necessary fundamental
16 resources that you make program adaptation. So
17 what I mean is, these active management process,
18 cities are just too big to be able to do that on
19 an annual basis. We do our budgeting process a
20 year in advance, so if we find that we don't make
21 annual milestone, it takes us a year to request
22 the necessary resources to make that correction.
23 And that's why during the permit workshops we had
24 advocated for a less frequent annual milestone
25 whether or not we were against milestones, an

1 annual is just not practical for how cities' --
2 their budget process works and how we reprogram
3 and implement.

4 CHAIRMAN ABARBANEL: City of San Diego
5 does not carry a reserve for unexpected expenses?

6 UNIDENTIFIED SPEAKER: We certainly
7 do. But as far as for the Water Quality
8 Improvement Plans and we're talking about the
9 compliance option that's on the table right, now
10 we are trying new BMPs all the time and we have
11 forecasted out what we think we need to do to meet
12 those numeric goals.

13 CHAIRMAN ABARBANEL: No, I understood
14 what you said, and I appreciate the answer to the
15 question.

16 MR. WILE: Okay. The City also
17 supports the San Diego Copermittees' comments
18 about the six-month extension for the effective
19 date of the BMPs design.

20 Now, as a followup to our written
21 comments, the City of San Diego requests that
22 Board staff amend the permit to allow for
23 individual jurisdictional compliance with TMDLs.
24 Let me elaborate that really quickly because I
25 only have a minute left.

1 Specifically, language and attachments
2 of the permit precludes any Copermittee from using
3 the WQIP implementation compliance pathway for
4 that TMDLs unless all Copermittees in that
5 watershed are effectively implementing their Water
6 Quality Improvement Plan commitments. This is
7 problematic for two reasons: One, individual
8 Copermittees, or MS4s, have no authority to compel
9 other Copermittees to comply with these
10 requirements.

11 And second, and more important in my
12 mind as an implementer, is in order to justify and
13 clearly defend requests for additional budget and
14 the resources necessary to implement these BMPs,
15 we, I, the City, Copermittees, need assurance that
16 our compliance is not going to be determined by
17 the actions or inactions of other agencies.

18 So in closing, I want to thank again
19 Board staff for working with us and the
20 stakeholders during this long process, and we, and
21 I particularly, look forward to transitioning from
22 Water Quality Improvement Plan planning to
23 implementation so that we can start to move toward
24 our collective goal of improving water quality.

25 Thank you.

1 CHAIRMAN ABARBANEL: So I note -- are
2 there any questions of Mr. Brown? I know -- this
3 is a question -- the City of the San Diego -- all
4 the San Diego Copermittees are now two and a bit,
5 almost two-and-a-half years into the process of
6 the WQIP's process.

7 I think this Board, and I think the
8 staff, were very pleased with the idea of Fiori,
9 that allowing the Copermittees to figure out how
10 to achieve the goals was a good one, rather than
11 our sitting up here and telling you what to do.
12 You've been through six out of the seven, 84
13 percent of the WQIPs. Is that happening? Were we
14 simply too optimistic? Are you and the other on
15 Copermittees happy that you get to decide how to
16 do it?

17 UNIDENTIFIED SPEAKER: I think it was
18 a -- at the end of the day, at the end of the two
19 years, it was a compromised approach. I think
20 most guys have issues that they can be happy with,
21 and then these plans are not perfect. And I think
22 Mr. Chiu talked about that earlier, about their
23 dynamic documents. We look to improve them and
24 work on the things that maybe didn't work so well
25 for the first two years, we're going to have an

1 opportunity to do that.

2 But to specifically answer your
3 question, I think the Copermittees appreciated the
4 flexibility to establish numeric goals, but we had
5 to work in tandem with our stakeholders and with
6 the Regional Board and they pushed back on us and
7 it was a collaborative process.

8 CHAIRMAN ABARBANEL: If in the future
9 we decide the plans must be perfect, these meeting
10 would be much shorter.

11 Okay. Mr. Brown, I think there's a
12 question for you.

13 BOARD MEMBER OLSON: Could you tell
14 me, then, since you're asking that the milestones
15 be changed, so you were happy you didn't have to
16 do them all up front, correct?

17 MR. BROWN: Yes. So I actually didn't
18 even acknowledge. I agreed with JoAnn's comment
19 that we do appreciate the change in the errata
20 sheet, that we don't have to extrapolate annual
21 milestones out 20, 25 years.

22 BOARD MEMBER OLSON: But you found it
23 burdensome that you have to do them?

24 MR. BROWN: My personal feeling, or
25 the City's, I don't know if I would use

1 "burdensome." The point I was trying to make is
2 simply if we don't attain an annual milestone, the
3 City's internal adaptive management approach --
4 we're not able to turn on a dime, and doing that
5 on an annual basis is difficult for a large city.
6 And so we were hoping that there could be a little
7 bit longer time between milestones with better
8 alignment with our internal budgeting process.

9 BOARD MEMBER OLSON: So meeting them
10 doesn't slow down the process, or it doesn't
11 coincide with your budget process, but overtime
12 would you --

13 MR. BROWN: If we don't meet an annual
14 milestone and we realize that we need to retool or
15 reprogram our storm water program to meet that
16 next annual milestone. We need a longer time to
17 do -- we need more time to do that. That that was
18 the point I was trying to make.

19 BOARD MEMBER OLSON: Or you need a
20 designated reserve to allow you to you meet those?

21 MR. BROWN: Yeah.

22 CHAIRMAN ABARBANEL: So if the City of
23 San Diego decided that they would form a five-year
24 budget and let the city council have four years of
25 vacation, would you be asking us for one milestone

1 every 25 years?

2 MR. BROWN: I don't know if I can
3 answer that question. I don't think the San Diego
4 city counsel can either.

5 CHAIRMAN ABARBANEL: Do you have a
6 question you wanted to ask?

7 BOARD MEMBER MORALES: I have a
8 question for staff, actually.

9 On the request that we push out a 180
10 days -- and I think originally, and correct me if
11 I'm wrong, we had said 30 days, and then there was
12 some back and forth, and currently what we've got
13 in the tentative order and recommendation is 90
14 days. I understand the argument 180 days gives
15 them opportunity to go through public process and
16 that takes set amount of time, 25 years, even the
17 best-case scenario. What does that do to the
18 grandfathering?

19 BOARD MEMBER MORALES: So we're
20 basically -- they're saying give the
21 grandfathering (intelligible) three more months?

22 UNIDENTIFIED SPEAKER: That would be
23 how the process would work out, yes.

24 CHAIRMAN ABARBANEL: Thank you very
25 much.

1 The next set of speakers are the
2 Building Association, 15 minutes. We understand
3 that there's been a request on the part of some of
4 the speakers in Group 9, the environmentalist
5 group, to speak earlier because of time. In
6 fairness, we set the schedule and we're going to
7 try to keep to it. So if you can please ask other
8 people to make their remarks, that would be
9 helpful.

10 MR. STRAWN: We can add your time to
11 the other speakers and make a record that you were
12 here, but we really prefer to not change the
13 schedule around.

14 MR. MCSWEENEY: Before we proceed,
15 Mr. Chairman, I need to be sworn.

16 CHAIRMAN ABARBANEL: Oh, my goodness.
17 Anybody else not yet sworn in?

18 Okay. Do you swear that the testimony
19 you will provide is true and correct? If so, say
20 "I do."

21 MR. MCSWEENEY: I do.

22 CHAIRMAN ABARBANEL: Thank you.

23 MR. MCSWEENEY: I'm Michael McSweeney.
24 I'm senior policy advisor to the BIA representing
25 the coalition --

1 CHAIRMAN ABARBANEL: Is the mic on? I
2 just want to make sure everybody hears you and the
3 record hears you.

4 MICHAEL MCSWEENEY: I'm Michael
5 McSweeney. I'm senior policy advisor to the BIA.
6 I'm representing the coalition.

7 Right off the bat I wanted to correct
8 one thing that my friend Wayne Chiu said. When
9 you pointed out about the watershed approach, that
10 is something we also bought into.

11 MR. CHIU: My omission. I apologize.

12 MICHAEL MCSWEENEY: Okay. So Board
13 members, I want to use a cultural reference as we
14 start. And I want you to join me, if you could
15 look at the slide. And we'll go back to
16 Mr. Peabody's way-back machine, and we'll go back
17 to 2007.

18 In 2007, the relationship between my
19 industry and the board was nonexistent. We really
20 didn't engage each other. We opposed the permit
21 in 2007. I didn't work for the BIA at that time,
22 but my understanding was we felt we were singled
23 out; most the requirements were on us. There
24 wasn't any dialogue. It was, "Here's the permit.
25 We're going to do this."

1 We felt it was unfair. We sued. We
2 spent a million and a half dollars. We lost.

3 I want to contrast that to what we've
4 done in this permit cycle. At the very beginning,
5 we overcame our fear and decided we wanted to
6 commit to collaborate with all the stakeholders.
7 We decided to help solve this problem by utilizing
8 the engineering skills of our members. We worked
9 collaboratively with the Copermittees, your staff,
10 and the environmentalists. That was a first. We
11 worked closely with Regional Board staff to make
12 specific changes to the plan, and we've spent over
13 a million dollars in hard cash and hours donated
14 to help try and make this permit better and
15 comply.

16 Well, I talked about the fear. The
17 next thing that comes up is trust. And the first
18 example I think you saw of that is our joint
19 letter with Coast Keeper. And if you look at No.
20 3, the point there, the one thing that I think
21 both our organizations feared. And you heard it
22 today from two sets of Copermittees that had one
23 watershed they were talking about. We were in
24 fear of doing eight of these plans simultaneously.
25 And why were we in fear of that? Because eight

1 WQIPs in 24 months -- I'm going to use "WQIPs"
2 because I only have so much time.

3 There's a limited pool of experts and
4 consultants. So it's hard enough to do one really
5 well, but if you've got a limited pool of
6 brainpower, to do eight simultaneously is a huge
7 challenge. This had never been done before, so
8 there was no template to follow. This was a
9 learn-as-you-went-along. The interesting thing
10 is, each component builds on the next. So in
11 building terms, the first thing is the foundation,
12 and then you set up the walls, and you set the
13 floor joints. That's how you build a building.
14 So each one of these had to be completed.

15 If there was any hiccup in that
16 schedule, then you're under that much more
17 pressure to try to get it done.

18 And as technical problems arose, it
19 took additional time to figure those out, and that
20 put already more demands on a tight timeframe.

21 We agree with your practical vision.
22 And I'm not going to read it to you because you
23 all memorized. So I want you to know that we
24 spent, as of yesterday, \$1,059,000. The first
25 line there is actual hard dollars spent on

1 consultant studies, reviews, policy work. The
2 rest is the people at work at the BIA, and the
3 other two are what our members have donated.
4 Basically, we've put our money on the table behind
5 what it is that your executive officer and your
6 Board is behind.

7 We're requesting 90 days beyond what
8 the staff had asked you to consider, to do some of
9 the following things:

10 The BMP Design Manuals, we spent a lot
11 of time on this. We're about 95 percent of the
12 way there. We need a little more time to work out
13 a few bugs, including how coarse sediment plays
14 into that.

15 The coarse sediment yield, we're
16 working on tools that will give us the ability to
17 practically comply with the requirements in the
18 permit.

19 The Water Quality Improvement Plans,
20 there's additional science data that is coming
21 online that hasn't been included in those plans,
22 and we want to see that included in those plans.

23 Public education. There are so many
24 misconceptions out there of when, who, and what
25 takes place where, so much so that I will

1 illustrate this. The City of Oceanside, we have
2 developers building houses, under construction,
3 and they're being told that if those houses aren't
4 done by the end of December, you're going to have
5 to comply with the new permits. That's completely
6 factually false. But there's so much that nobody
7 really knows what's happening, and so there needs
8 to be more time to educate through both the
9 industry and the city and, basically, all your
10 stakeholders to know when will things go live.

11 Finally, in 180 days we're not going
12 to get alternative compliance figured out, but we
13 need more time to get that up and running because
14 that's going to be, I feel -- I don't want to say
15 the "silver bullet," but that's what's going to
16 help get us to where we want to end up.

17 So when you look at the design manual,
18 we want to make sure -- and what we've been
19 working on -- is to make sure that it's easily
20 understood. This is the Bible, the how-to
21 document in each city of how you will comply, what
22 you have to do to comply, development staffs of
23 the cities.

24 Now, these aren't the storm water
25 managers. These are the people that actually

1 process plans. They need to understand and get
2 trained on what does all this mean. Because right
3 now they have something of an understanding, but
4 they don't know the specifics. Once complete, we
5 need to make sure that all the people on our side
6 of the table are trained and understand now
7 whatever is basically in cement, codified, going
8 forward.

9 Most of the work is 95 percent
10 complete, and we need -- and Wayne touched on this
11 in his presentation -- we need a clear procedure
12 so that when problems come up stakeholders and
13 Copermittees can get together with Regional board
14 staff and get it fixed, which brings us to coarse
15 sediment yield.

16 This area was not well-understood
17 going in. There's not much in the permit about
18 it; it talks about avoidance. Even after the
19 watershed mapping analysis was done, we really
20 didn't understand what that was. And in one of
21 the forums they passed around an
22 8-and-a-half-by-11 piece of paper with where we
23 think sediment is, and it all looked like it was
24 in east county and everybody figured out, "Ed,
25 we're not building there."

1 So once we understood where the
2 sediment is -- and if I could just show you, this
3 is the map that came out in June of this year.
4 It's a GIS map. So once we were able to actually
5 see it, it became nicknamed "The Rash Map" because
6 it looks like the county has a rash. So once you
7 started looking at it, it's hard to see -- you can
8 see all in east county, but even down in here
9 there's still pieces of red. So when we start to
10 blow this up -- now, here's a perfect example.
11 Can you see this is Fanita Ranch down here in
12 Otay. So how do you comply?

13 And so needless to say, when this map
14 came up and property owners and developers looked
15 at it and they honed in on where their red dot
16 was, it was an "Oh, my God" moment. You talk
17 about the anxiety level, my phone and my e-mail
18 blew up.

19 We have compliance challenges. How
20 are you, meaning an applicant or a Copermittee,
21 going to document the permit so that permit
22 requirements are met? There's practicality on
23 doing this.

24 So we're suggesting -- and I think
25 John talked about it -- we should have some sort

1 of a workshop similar to what they did for
2 Hydromodification in 2007 so everybody gets on the
3 same page and we all know what it means.

4 The other thing is drainage
5 boundaries. Sediment transport is based on
6 drainage boundaries not project boundaries. So
7 your project could be in the middle of something
8 and you gotta figure out on two pieces of
9 property, upstream and downstream of yours, how
10 are you going to get your sediment to the
11 tributary?

12 So why did this become an issue so
13 late in the process? Well, there was a lack of
14 transparency. And it's not anybody's fault, but
15 when there wasn't an understanding where they
16 talked about there was a small map that went
17 around. And you can see if you reduced that to an
18 8-and-a-half-by-11 slide, you couldn't see any of
19 those small mounds. All you saw was what looked
20 like the mountains.

21 The original link that was released,
22 if you had GIS software on your computer and you
23 tried to download the map, it crashed. It was so
24 large a file.

25 We asked, after three or four weeks of

1 the map being on the site, for the County to
2 figure out a better way to make it more
3 user-friendly, maybe put in Google Earth, so if
4 you had Google Earth then you could see it. The
5 public couldn't find it easily.

6 And so what did that do at our end?
7 As soon as we figured it out, my phone blew up.
8 People started to panic. Everybody assumed the
9 worst, which extremed the panic. And then
10 finally, once you factor in the permit timeline,
11 now it's maximum panic. And this is what happens:
12 The engineers freaked out. The hydrologists
13 started sweating profusely. The developers are
14 pulling their hair out, and even our children were
15 stressed because we became overstressed all of a
16 sudden.

17 So what do we do next? On the left is
18 pretty much what our industry looked like. We
19 freaked out. I called Laurie. Laurie put
20 together a meeting with Wayne and Christina. And
21 their message to us was, "Look, don't panic."

22 What we were looking for from the
23 permit -- and this is the benefit of the
24 collaboration. I will say right now, a year and a
25 half, two years ago, there was a lot of anxiety.

1 We've been working with your staff. Whenever we
2 have a question, they answer it. My boss meets
3 with the executive officer on a regular basis.
4 And so what they told us was, "Look, this is what
5 our intent was, was no net impact."

6 So then what we did was we went to
7 work. We had the meeting with them, then we
8 helped, and we were at other stakeholder meetings.
9 We met at Coastkeeper Inn. We met a couple times
10 with Copermittees. How are we going to get this
11 to work? One of our academics put together a
12 white paper on sediment yield. He developed a
13 dimensional index. I know that the County's
14 consultant was developing something. We went to
15 work. We freaked out, but we got some
16 clarification and we went to work because the time
17 is ticking. And we worked collaboratively because
18 at the end of the day what we want is, we want to
19 have the tools in the toolbox so that we can
20 comply with the permit.

21 So the Copermittees need additional
22 time to do the following things:

23 They've got to do public work
24 workshops to educate, solicit input on this
25 particular topic.

1 We need to coordinate the solutions
2 and then get them into the BMP Design Manuals.
3 Remember, each city has one of these.

4 Then we've got to review all available
5 sudden since that was not given during
6 consideration on the Water Quality Improvement
7 Plans and include that where applicable.

8 They've got to have time to schedule
9 counsel meeting and counsel approval, and then we
10 have to conduct concurrent training for
11 development industry staff, as well as the people
12 that work for the different Copermittees.

13 So how do we get to the goal? We
14 think by adding 180 days total -- the 90 that
15 staff said that they will give, plus an additional
16 90 -- starting up the December 24th due date, that
17 we can come together and agree on standards and
18 get the course sediment yield figured out,
19 codified, and into the BMP Design Manuals.

20 We also think that we can get some
21 additional work done on the Water Quality
22 Improvement Plans where they've been deficient.

23 We can incorporate a fully developed
24 workable model into all the manuals, and we can
25 allow the various jurisdictions to have the time

1 to adopt what they need to adopt. At the end of
2 the day, this is what we're looking for.

3 The staff agreed that with sediment
4 with no net impact there's not, like, one answer.
5 There can be other options proposed that
6 demonstrate no impact. We want to have as many of
7 those tools in our toolbox as possible. And it's
8 important and necessary for you as the Board to
9 understand that there is a need to have your staff
10 available to answer questions as we move forward,
11 not to play referee, but there are legitimate
12 questions. "Okay. How are we going to figure
13 this out?" Sometimes they come from us.
14 Sometimes they come from the Copermittee.
15 Sometimes they come from the environmental
16 community. Because at the end of the day, this is
17 what we want: We want a permit that works for
18 everybody. Not necessarily everybody is going to
19 be happy, but we want something that works for
20 everybody. And by doing that, at the end of the
21 day we want results.

22 Finally, I think that our Copermittees
23 in both Riverside and Orange County touched upon
24 CEQA, and I know that with doing eight of these
25 plans at the same time the City of San Diego

1 adopted an approach that they said they had a
2 mitigated negative declaration. But most of the
3 other Copermittees have it, and there are definite
4 CEQA requirements, and nobody calculated that into
5 their timeframes as well. So I just wanted to put
6 that out there.

7 But I appreciate your time. If you
8 have any questions, I'd answer them.

9 BOARD MEMBER MORALES: Mike, one very
10 quick question.

11 When you suggested that you would want
12 staff or it's necessary to have staff available to
13 answer questions, were you envisioning something
14 along the lines of the folks on your end designate
15 one person to contact staff? Or are you
16 suggesting that they take calls from everybody who
17 has a question?

18 No. Typically -- let's use the coarse
19 sediment as the example. That's exactly what
20 we've been doing.

21 As we've had problems, typically it
22 falls to me. People call me and then I usually
23 call Laurie or one of the staff members. And
24 that's what I do. I think I called you and said,
25 "Hey, we've got a problem with this. We need to

1 meet with you. How soon can we get in to talk?"

2 BOARD MEMBER MORALES: Okay. So
3 you're just asking to continue the --

4 MR. MCSWEENY: Collaborative
5 relationship.

6 BOARD MEMBER MORALES: -- working
7 relationship that we appear to have now, as
8 opposed to something more.

9 MR. MCSWEENY: Right, yeah. No, the
10 intent was never to have project applicants
11 calling them, saying "Can we do this? What about
12 this?" Not at all. Not at all. Not at all.

13 What we're really trying to do is work
14 and have them as a resource. Let's work with the
15 Copermittees to make sure that everybody's on the
16 same page, that we understand what's required in
17 the BMP Design Manual, and then we sell that and
18 educate our folks.

19 On the other hand, they've got a job
20 of making sure that everybody on their end knows
21 what does all this mean. And it is extremely --
22 coarse sediment is unbelievably technical. And so
23 at the end of the day when somebody is trying to
24 get a project processed at the City, if they don't
25 understand, they just kind of throw their hands

1 up, "No," or they go do a study and spend \$25,000,
2 which may or may not answer a question, and they
3 don't even know the right question to ask.

4 So that's why it's important to have
5 time to educate both groups of people.

6 BOARD MEMBER MORALES: Okay.

7 CHAIRMAN ABARBANEL: We will move on
8 to the next group.

9 Mr. O'Malley?

10 MR. O'MALLEY: Thank you. I also have
11 presentations I'd like to make.

12 CHAIRMAN ABARBANEL: And you organized
13 it in groups of people?

14 MR. O'MALLEY: Yeah, actually just one
15 other in our 30-minute time slot. And I'll
16 hopefully cover about 20 minutes.

17 CHAIRMAN ABARBANEL: You have 30
18 minutes. You have somebody who will be very
19 friendly until 29.9 minutes.

20 MR. O'MALLEY: Actually, I would
21 request that Board members shall perhaps give me
22 30 seconds to respond to Board Member Morales'
23 question up front before we begin.

24 CHAIRMAN ABARBANEL: Anytime you
25 respond to questions, I try to turn the clock off.

1 MR. MORALES: I asked a lot of
2 questions.

3 CHAIRMAN ABARBANEL: Go ahead.

4 MR. O'MALLEY: This is the -- Excuse
5 me. Matt O'Malley, legal and policy director of
6 San Diego Coastkeeper. First, thank you for
7 having me today.

8 I want to kind of respond because it
9 seemed like from staff and what you spoke to this
10 morning as far as the interpretation of the
11 State's Board and Order, I want to read the
12 language specific to that you talked about because
13 I interpret it as a very different sort of
14 instruction.

15 The idea, it seems like --

16 CHAIRMAN ABARBANEL: The State Board
17 and Order and Alternative Compliance?

18 MR. O'MALLEY: Correct, yes. And I
19 will be addressing just alternative compliance.

20 BOARD MEMBER STRAWN: May I ask you --
21 when you know you have a tendency --

22 MR. O'MALLEY: Okay. And I'm sorry.

23 BOARD MEMBER STRAWN: We have a
24 recorder, that if you get ahead of her --

25 MR. O'MALLEY: I have a tendency, and

1 I apologize. I have a lot to say, and I'm trying
2 to cover it all.

3 So the idea was that -- the thinking
4 was that the State Board says you should consider
5 this, but if you don't do it, we need you to
6 justify why.

7 And obviously, if you read the
8 language, it's pretty clear that that's not
9 exactly what they meant. So I think instead what
10 they're saying is -- and I can read it to you --
11 but they say, "We direct all Regional Water Boards
12 to consider our approach to receiving water
13 limitations compliance when issuing these permits.

14 "In doing so, we acknowledge that
15 reasonable differences may dictate a variation in
16 this approach but believe that such variations
17 must nevertheless be guided by a few principles.
18 We expect the Regional Boards to follow these
19 principles, unless a Regional Water Board makes a
20 specific showing that application of a given
21 principle is not appropriate for a region-
22 specific permit."

23 So instead of saying, "Do this or show
24 us why not," they're saying, "Follow these
25 principles, and if they're not applicable to your

1 region, then tell us why not."

2 That's, I think, a very different
3 interpretation. It's very much -- it's a
4 direction or tell us why you're not going to do
5 it. Or, "If you don't follow each these seven
6 principles, if you decide to do it, explain why
7 not," because they want you to follow those
8 principles. And I'll go through some of those
9 later in my presentation. But hopefully, that's
10 just a different take on what the State Board is
11 saying and how he interpreted it versus sort of
12 what I've heard thus far.

13 So again, I'm going to just cover the
14 alternative compliances. You know we called on
15 Safe Harbors, which is most of us, and our groups,
16 our lawyers, and we get that right from the Ninth
17 Circuit. But this general idea is that this is a
18 provision that gives some sort of out or, you
19 know, compliance of certain provisions or plans,
20 forgive noncompliance and discharge. And that's
21 essentially -- in fact, that's exactly what it
22 says, and that's why the Copermittees are
23 supportive of it. You know, once your compliance
24 has been processed, you're deemed as compliant.

25 I know that we are looking for

1 outcomes based permanently. In our opinion, this
2 very much goes back to the model-something plan,
3 get a plan approved and now you're in compliance.
4 It's sort of the opposite. It's sort of more of a
5 process-based approach.

6 But that's kind of just to sort of
7 give a start-out where I may intend to go here.

8 And I want to hit two main points in
9 the brief time I have here, but the first is that
10 -- for those of you who were here in 2013, we
11 discussed this, that we do believe that the Safe
12 Harbor approach violates anti-backsliding
13 requirements of the Clean Water Act and federal
14 regulations.

15 The second is that the tentative order
16 -- and this is something that L.A. didn't have to
17 go through -- the tentative order here, we
18 believe, is fairly inconsistent, if not very
19 inconsistent, with State Board's order and
20 directives. I want to hit each these sort of
21 together here.

22 The first, again, it goes back to
23 basically the idea of what is anti-backsliding?
24 I've thrown out a lot of language here, but the
25 idea is that federal regulations and Clean Water

1 Act prohibits backsliding, where we can have
2 permits from previous permits.

3 The way we look at the Safe Harbors is
4 -- because they no longer require an actual
5 meeting of water quality standards, they are less
6 stringent than existing permits and previous
7 permits, and in fact, they violent this.

8 Now, Reason 3 has actually spoken to
9 this, especially with time constraints when they
10 say backsliding is permitted, allowing additional
11 time to complete a task that was required in the
12 previous permit constitutes a less stringent
13 condition to violate the provision against
14 anti-backsliding.

15 So I don't want to go too far into the
16 legalities here because what the L.A. board order
17 did, as well as the San Diego board, what it's
18 saying is, "You know, we're not actually sure if
19 we're violating this or not. But even if we are,
20 there's an exception here and we're going to claim
21 the exception."

22 So they give this sort of
23 justification as to why they're not violating
24 anti-backsliding, "They do this in L.A., and we're
25 doing it here."

1 So I really want to talk about more of
2 what those claims exceptions are. I believe that
3 this issue is probably going to be dealt with in
4 court. I think it's already being petitioned up
5 to courts in L.A. on that very issue. And so I
6 really want to talk about the justifications here,
7 what we're claiming here in San Diego, and why, in
8 L.A., what worked in L.A., what's claimed in L.A.
9 is not applicable to us one way or the other.

10 There is two sort of ways it's not.
11 It's either what exists there on the ground
12 doesn't exist here and so we can't claim this is
13 this new information, or, of course, substantial
14 change, or we've already been doing these things
15 for a while so we can't claim they're new.

16 But essentially what they're saying is
17 the justification for backsliding there was this
18 new information for the previous permit. But you
19 can imagine they waited 11 years between permits.
20 Of course there's going to be plenty of new
21 information. So you're correct in assuming that,
22 oh, one or seven or 13 and several amendments in
23 between.

24 But the idea was that we have these
25 paradigm shifts that they want to treat storm

1 water as an asset rather than a liability. There
2 was a lot they've learned in TMDL. They have
3 something like I think totals about 40-something
4 plus in L.A. region, actual TMDL which serve as
5 sort of a backstop incorporated. So then as far
6 as permit, really will get at the gist of water
7 quality issues. Then the large sort of planning
8 of regional solutions which we've already
9 implemented, and LID benefits, which we've already
10 implemented.

11 So for a number of reasons, I don't
12 think those exceptions at all apply to San Diego.

13 The response to comments here
14 basically says, you know, the circumstances have
15 changed here materially substantially, so that
16 should allow us to get around the
17 anti-backsliding.

18 I would say very clearly the only
19 material change here is that we're adopting a safe
20 harbor. All the rest of the provisions have
21 already been in place, some of them since 2007.
22 And the main justification for what has been in
23 play -- and I'll go through those right now --
24 really don't apply here either. So I think
25 claiming this new information it just doesn't

1 apply.

2 And I'll say this numerous times: We
3 sort of copy and paste justifications sometimes,
4 but we didn't then look to see if those
5 justifications apply here, nor did we copy the
6 methods on the permits, and there are some
7 specifics things I'll address there.

8 So what are the main things that were
9 said, Look, we expect the L.A. orders TMDL
10 requirements, they're going to be the means to
11 achieve water quality standards for the majority.
12 They have -- I know some places state 33,
13 depending on how you look at it, over 40 I heard
14 the other day. The L.A. board said the exact same
15 thing. They said the majority of pollutants
16 concerned are addressed by 33 TMDLs that are
17 included in the permit. So the whole idea here of
18 part of the justification of doing this up there,
19 we have an enormous amount of TMDL. It wasn't
20 just the fact that they learned lessons from the
21 TMDLs, but that they have them as a backstop to
22 incorporate them. Just to contrast, we have five
23 of them here, right? And then more and more we're
24 looking toward alternatives to TMDLs here, and
25 some of those alternatives are expressly this MS4

1 permanent, like we're doing in Loma Alta slew and
2 up in Oceanside.

3 (Court reporter interrupts to slow down the
4 speaker.)

5 MR. O'MALLEY: So like we're doing in
6 Loma Alta slew, we're looking at the MS4 permits
7 as an implementation measure rather than the TMDL.
8 So we really need that rigorous accountability
9 that we were talking about earlier.

10 The second justification -- one of the
11 main justifications is, in terms of water supply
12 -- and we all would agree to this -- there's
13 really been this paradigm shift. Look to water as
14 a water supply as an asset rather than a
15 liability. But practically and legally there's a
16 couple of problems with part of that justification
17 here.

18 One, we just do not have underground
19 basins and recharge basins like we have up north.
20 I would love it if we do. I think we have some
21 great projects here. So it may be that we're
22 instead relying on more traditional storm water
23 measures to deal with storm water. They're saying
24 lack of availability of ground water recharge
25 storage capacity.

1 The legal problem with that is that
2 our MS4 permit -- and actually, the gentleman from
3 Riverside said this earlier -- it doesn't require
4 the analysis like L.A. permit does, to look into
5 the multi-benefit regional water supply for water
6 supply. There's actually provisions in the L.A.
7 permit that have that. We don't have that. Maybe
8 we should. I would argue we definitely should.
9 But again, that's a problem with copying the
10 justification but not actually having the means in
11 place to deal with that.

12 And the last two that I think were
13 major justification changes were for
14 anti-backsliding exceptions was that we should
15 adopt this watershed approach. And we also agreed
16 that that is the right approach. And we agreed,
17 actually, in 2007 and took that approach. And
18 this is language from the 2007 permit that says,
19 "The Copermittees within a watershed; there are
20 two developed watershed-based management
21 strategies."

22 So it was not new information, not
23 anything that's materially and substantially
24 changed here. We've actually been doing this
25 since 2007. And I would say to some degree we've

1 been doing it with LID, as well. And those really
2 were the main justifications for anti-backsliding.

3 So I think before I go on, I just want
4 to say, you know, you have -- I think this is the
5 example of where we're copying the justifications
6 from L.A., getting around anti-backsliding, if we
7 do agree that's a problem. And the permit
8 actually doesn't say it is or not. It admits it
9 may be a problem, but we're not actually moving
10 forward with the measures that either exists in
11 L.A. or were recommended in the State Board order.

12 And I'll get to those next.

13 So then we're asserting at this point
14 that this order as it stands -- and I'll go
15 through, really, three main ways that it is.

16 I'm going to go through what the RA
17 is. It's pretty important. It's actually sort of
18 the lynchpin of what the State Board agreed to in
19 the L.A. permit.

20 There is also, as I mentioned, none of
21 these regional multi-benefit capture and use
22 compliance provisions. We may see them with
23 alternative compliance. But as far as just
24 complying, out there they have an 86 percentile,
25 24-hour storm capture use and provision, which we

1 don't have.

2 And then because of these lack of
3 extensive standards, we want to be able to go back
4 and tweak it, amend it. That's kind of what we
5 have now, and now they're asking for protection of
6 that.

7 So I just want to go through -- again,
8 I'll reiterate this, that State Board really lays
9 out a very specific pathway to these safe harbors.
10 But what does is it bars the justification in ours
11 but not the approach and methodology, which is
12 RAA, and I'll talk about that moving forward.

13 It lays out the principles, which
14 you've heard. These are those seven principles
15 which I talked about that says if you're not going
16 to follow these, explain why you didn't, so more
17 specific. What it says is, these things have to
18 be ambitious, rigorous, transparent. Again, they
19 want to encourage multi-benefit water supply
20 projects, compliance projects. There must be
21 rigor and accountability, which I think we all
22 agree, and there really shouldn't deem good-faith
23 engagement from the process as compliance.

24 So what's the backbone of that whole
25 program is something called the "Reasonable

1 Assurance Analysis," or RAA. This is really a
2 point of contention in L.A., and in a very big way
3 for anybody following it. I've become much more
4 familiar with the L.A. permit process than I've
5 ever wanted to. My jurisdiction pretty much ends
6 in San Diego, but not anymore, I guess.

7 So what they -- the people who
8 approved it said, "Look. We need a well-defined
9 transparent way of moving forward."

10 And we actually heard earlier John van
11 Ryan saying, Look. We're critical. We need the
12 sort of time-tested -- we need ways of moving
13 forward.

14 All we're saying is the same thing
15 here. There is some groundwork laid for us in the
16 L.A. permit which we did not copy. And really the
17 State Board order gets it and says, Look. The
18 requirement for these things is really just to
19 show that when Copermittees choose a pathway, that
20 the way they site them, the way they design them,
21 their the BMPs, it's just going to work. We have
22 a really good idea that it's going to work that
23 way.

24 Besides that -- oh, and I will not
25 raise this, but I want you to know this is just

1 one section of the L.A. permit that talks about
2 what this safe harbor looks like out there. It
3 goes about which models are accessible, all data
4 collected the last 10 years. This is actually not
5 even the whole entire section, but it's very
6 specific in the permit itself saying, "If we're
7 going to accept this, this is the level of rigor
8 that we want to see, at the bare minimum."

9 On top of that, they have something
10 like 37 to 50 pages of guidelines that were
11 developed. "Now as you're moving forward, these
12 are the detailed, objective criteria that you need
13 to follow moving forward."

14 Again, this adds to this level of
15 rigor, transparency, and accountability that this
16 State Board order saying we need to see. I'll
17 just read from this section as well: "It must be
18 adequate to identify the required reduction of
19 each water body combination at each compliance
20 deadline and analyze the BMP scenario to achieve
21 that deadline."

22 So these are guidelines that are very
23 strict, very rigid in moving forward. We just
24 don't have something like that.

25 The guidelines here, again, this is

1 really just to show you. And the point of this
2 slide -- I'm not going to read it -- shows some of
3 the type of things that are considered in
4 developing these plans. But the idea is that with
5 this type of guidance anyone in this group,
6 whether it's myself or the consultant, or anyone
7 in this room, or your staff or even you, could
8 look at this stuff and say, "This is what is
9 expected of you. These are the objective,
10 rigorous transparent criteria. Move forward using
11 those," and then you might be okay. But we at
12 least have some sort of criteria with which to
13 gauge that compliance is on, not just "show us
14 what you got," which I'll contrast with our
15 language, "an analysis with clearly stated
16 assumption."

17 So we go from this, with something of
18 50 pages of guidance, to this. And I think it's,
19 by argument, very clearly this is not rigorous,
20 it's not transparent. We are trying to be
21 flexible, and I get that. But we're taking
22 flexibility and sacrificing transparency and
23 accountability. Because transparency doesn't just
24 mean at some point the public gets to look at this
25 plan. It means there are objective criteria up

1 front with which we can then review it together.
2 Your job and my job are not that dissimilar at
3 times, to see our water is safe and clean for
4 people.

5 The other lack of objective measure
6 here is if they're not in compliance -- the only
7 thing that won't -- I mean, they won't get kicked
8 out right away. They just need to give what's
9 called "acceptable rationale." I don't know what
10 that means. I've got staff that won't know what
11 that means. I don't know that you know what that
12 means, what that "acceptable rationale" would be.

13 So I think what's happening here is
14 because there's no RAA or guidance we just don't
15 have this objective criteria. We don't have this
16 rigor or transparency or accountability that the
17 State Board order saying we need to have if we're
18 going to do this.

19 Despite all the problems, at the very
20 least, we need some of these processes. Also,
21 because there is this sort of acceptable
22 rationale, how do we know, then, are we compliant
23 or are just in this inner loop?

24 I mean, I don't know at what point I
25 will then be able to come up here and say that's

1 not really acceptable. That's not really a
2 standard that I can point to. I can point to
3 standards in the CFR or Clean Water Act, but
4 "acceptable rationale" or an analysis without more
5 is difficult.

6 The EPA has actually spoke about this
7 specific issue, and they did so Monday. I know
8 Christina represented their letter earlier. But
9 what they said is, "Look. These proposed permit
10 modifications provide only limited direction
11 concerning specific technical, analytical, and
12 planning expectations. They didn't recommend
13 prompt development of guidance," since what I'm
14 also recommending, "built into the permit." And
15 they say, "It best serves everyone's interest if
16 there's clear understanding about the level of
17 technical rigor necessary to demonstrate
18 reasonable assurance."

19 And they go on to say, "Look. You
20 guys need to come up with a way -- we all need to
21 come up with a way in this permit, if we're taking
22 this approach -- despite this problem -- that has
23 this rigor and accountability, these guidelines
24 and guidance built in to moving forward."

25 So just to kind of recap what I very

1 quickly breezed through -- sorry. We see this as,
2 if not rigorous, transparent, or well-defined
3 without either RAA or upfront guidance built into
4 this permit that we can point to. You know, it
5 allows for non-achievement of PWLs based on what
6 I'm seeing as this nebulous, sensible rationale.
7 And as long as there's acceptable rationale, which
8 I don't know what that is, and I don't know
9 anybody in this room that can clearly tell me what
10 that is.

11 And then we see this not as ambitious.
12 I think we all agree. But let's put something in
13 the permit that actually is like L.A. that says,
14 "Look, we want to get towards them and so we want
15 to actually have that be part of the analysis.
16 Can you capture, infiltrate, or somehow or other
17 make this water supply as part of this permit?"

18 We'd love to see it. And I think the
19 gentleman from Riverside said earlier the same
20 thing; they'd love to see it. It might be
21 available in certain parts of north county, as
22 well.

23 Just the background again. Some of
24 the main justifications is where this has been
25 implemented there's numerous, numerous TMDLs as

1 backstops to ensure water supply standards will be
2 met. And they also have this much more rigorous
3 RAA requirement moving forward, and neither of
4 those exist here.

5 You know, this is something from
6 earlier this year -- and they sort of shared the
7 interpretation that I have. That Water Quality
8 Board directs all regional boards to consider the
9 approach but does not require its use. We believe
10 that it would be premature and inappropriate to
11 require the L.A. permit approach throughout the
12 state."

13 I am mimicking their language and
14 saying the exact same thing.

15 Now, I want to have a couple proposals
16 here for you. We can remove the safe harbor
17 language and come up with something like a time
18 schedule order and compliance list.

19 Now, as I understand it, earlier today
20 you guys adopted a time schedule order for the
21 Navy without any, you know, any discussion, kind
22 of went through it. And it's way that -- because
23 the Navy says, you know, "We can't comply with
24 this in this timeframe." You do have mechanisms
25 to deal with that.

1 You can actually have a couple come up
2 and say, "Look. Yes, we are not in compliance."
3 You can actually have one of them admit, "We are
4 not in compliance. We want to get into
5 compliance. Let's work this out. We have
6 protection from third party lawsuits," if that
7 really is the position that they're worried about,
8 is myself or someone else in this room coming
9 after them.

10 You can do it another way, and it
11 still lays out the same, you know, protections and
12 methodology forward, if that is what they want.

13 If you're dead-set on adopting this,
14 what I would say is, I know that the San Diego
15 Water Board are working on statewide guidance
16 issues on the RAA, essentially to say what really
17 is reasonable assurance, what are the basic
18 criteria, how do we calibrate these models.
19 They're working on it right now, and I expect it
20 will probably be done within a year or two.

21 Why don't we wait until someone
22 actually has developed all of the guidance and
23 methodology first. Or we can look at L.A. and
24 say, "Yes, that's the method we want to do moving
25 forward."

1 By then, you'll probably have the L.A.
2 lawsuits panned out to determine if this
3 backsliding data is important or not. But it
4 actually gives us a very clear way.

5 Lastly, and this is not a proposal;
6 this is just if you're going to move forward it's
7 sort of a "Look. Let's add in this RAA language
8 into the permit." We have this L.A. language we
9 can pretty much cut and paste, as we've done that
10 with the justification. And since the whole idea
11 that sort of annual milestones came up, partly in
12 the workshops because I asked for them, but what I
13 asked for, let's say they are not meeting two
14 years in a row, let's just bring them back to
15 status quo. They don't need protection anymore.
16 Well, that language wasn't excessive, for whatever
17 reason. But I'm just calling it the hard out.

18 If we're going to move forward without
19 guidance, if we're going to move forward giving us
20 protection in any sort of scheme, at least let's
21 have something that says, "But if you keep blowing
22 it, you're out." And it's now out of the permit,
23 it's just out to where we are today, which is not
24 such a bad place. We have these W2 MPs which are
25 moving forward. They are going to be implemented.

1 On top of that, I would just say, if we are going
2 to move forward that way, we should add the water
3 supply provisions, as well as ramp up some of our
4 allocations in TMDLs, if they really are the
5 backstop in L.A.

6 I knew that this issue would come up
7 so I just kind of let the EPA speak for myself and
8 my organization. We call this the grace period.
9 Essentially, they want the safe harbor to develop
10 a phase.

11 Establishing a safe harbor during this
12 phase is not warranted. That's from January this
13 year of Jay Smith, the head of NCDS permits up in
14 San Francisco. And two days ago, "There is
15 insufficient basis to conclude that permit fees
16 are or will be in compliance." I share those
17 sentiments. I echo them. I very certainly agree
18 with them. I just see no reason why, if we are --
19 you know, it's one of those things where the gift
20 horse is in front of us, seeing how we want to put
21 teeth whitening on it. It just doesn't make sense
22 at this point.

23 So where are we? We've seen the
24 WQIPs, and I've reviewed all of them on this, as
25 close as I can. You know, I think our permit is

1 pretty good, as far as laying out this path
2 forward. It had some good stuff there, but there
3 was differences in things on how it read. I think
4 we've seen -- and I think you heard recently, and
5 I think you probably heard from your own staff how
6 happy they were with the first draft and the
7 submitted draft of the water quality improvement
8 plan. Without the clear sort of strict guidelines
9 upfront, you're going to get woefully inadequate
10 plans, especially if you're giving people
11 protection. That becomes a main problem. I also
12 want to remind us since 2013 what you have done
13 and what your staff has done.

14 Since 2013, there have been multiple
15 MS enforcement actions against the City of San
16 Diego, multiple against the City of Escondido,
17 Carlsbad, Chula Vista and Lemon Grove. So now
18 we're talking about having protection when you're
19 still issuing them enforcement actions under MS4.

20 Since we're considering new
21 information since 2013, these are pictures I took
22 recreating in our water bodies two months ago, any
23 given day. I didn't even pick a special day.
24 This is what we're still looking at. These were
25 pictures sent to me -- on the left, Escondido

1 Creek Conservancy called me furious after their
2 water check looked this way. These are fish kills
3 up in Oceanside, I think, due to up to nutrient
4 pollution earlier this year in January.

5 So this is just to point out this is
6 still ongoing. This is since the 2013 permit has
7 been implemented. There's a huge gamble we're
8 taking if you pass this. These guys are going to
9 do everything they need to, and they're going to
10 do it with this level of protection, but they're
11 not going to have the strict guidance that they
12 need moving forward.

13 I think, you know -- I mentioned the
14 legal issues. We think they're very serious. We
15 don't think there's exceptions to backsliding that
16 apply here. But, also, we think the way moving
17 forward, we're going to copy the justifications,
18 we absolutely have to copy the kind of guidance
19 that's moving forward in L.A.

20 With that, I think I'm finished, other
21 than just to say, obviously, this tentative order,
22 we cannot and will not support it without at least
23 some of the changes made. I think regardless,
24 there are issues. If you are dead set on passing
25 this sort of alternative compliance, let's put it

1 off until 2018 when there is statewide guidance on
2 this.

3 Thank you. Appreciate it.

4 CHAIRMAN ABARBANEL: Questions?

5 BOARD MEMBER MORALES: I have just
6 one. You've seen the QWIPs that have been
7 prepared over the last several months here. Are
8 any of them woefully inadequate?

9 UNIDENTIFIED SPEAKER: I think upon
10 first submittal, yes. I don't know that staff --
11 I'm not going to point fingers, but I will say I
12 think some of them failed to meet even the minimum
13 requirements of the permit, absolutely.

14 I don't know that staff or even other
15 Copermittees would disagree with me. There was a
16 period to go back and do some adjustments. I've
17 started looking at those, as well. Some of them
18 are bad and some of them are a way moving forward.

19 MS. HAGAN: We really need to try not
20 to talk about the separate water qualities. It's
21 a little hard to divorce but there are separate
22 proceedings that are going to be coming before the
23 Board, in terms of the detail. The general
24 question --

25 CHAIRMAN ABARBANEL: What is that

1 procedure? Once a QWIP is submitted for
2 consideration by the staff, does it come back to
3 the Board to be approved?

4 MS. HAGAN: I believe the permit
5 language roughly reads that if "After a process
6 and they have been submitted, if there don't
7 appear to be significant unresolved issues, the
8 executive officer can go ahead and approve them.
9 If there appear to be significant unresolved
10 issues, in his determination, he'll schedule them
11 for a Board hearing.

12 CHAIRMAN ABARBANEL: Thank you.

13 MR. GONZALEZ: Mr. Chair, members of
14 the Board, Marco Gonzales of Coast Law Group on
15 behalf Coastal Environmental Rights Foundation.

16 I've been before this Board a lot over
17 the last 20 years on storm water. It's somewhat
18 interesting to see some of the same players making
19 the arguments that have evolved but come down to
20 the same thing "Don't make me do it or don't make
21 me do it right now."

22 I'm going to be talking about -- I
23 took the oath earlier. So I'm going to be talking
24 about prior lawful approval. This notion that an
25 applicant, a developer, has done something such

1 that these equities would result in us giving them
2 the ability to take advantage of the 2007 BMP
3 manual or the storm water control and not require
4 them to comply with the new BMP manual.

5 That notion of equity is interesting
6 because I heard John Van Ryan, one of those guys
7 who has been doing this as long as I have, come up
8 here and say, "I want even more time" I'm jumping
9 ahead on my comments. "I want more time because
10 we need time to work with the applicants to
11 utilize this."

12 That's not the point of the prior
13 lawful approval. It's not to say "Give us six
14 more months so we can jam as many people into the
15 pipeline and get them to that point of compliance
16 and get them out of having to comply with the 2013
17 permit."

18 Now, fundamentally, before we even
19 start talking about this, we ask ourselves "Why
20 are we doing this? Why are we doing a new permit?
21 Why are we amending our permit? Why did we
22 require, in 2013, the hydromodification changes
23 and new BMP handbook?" Because we said 2007
24 wasn't good enough.

25 We know that because we're not in

1 compliance with the Basin Plan. We haven't done
2 our TMDL. We're still violating water quality
3 standards every single day in every single
4 jurisdiction after 20 years of trying to regulate
5 storm water.

6 And so at the base, what Mr. Van Ryan
7 is up here saying, "Give us a chance to not have
8 to do more, to not have to do what we already know
9 is required to meet the basic standards."

10 If you read the language starting at
11 page 102 of the tentative order dealing with the
12 prior lawful approval, we could actually end up
13 five years down the road even more. So we're
14 talking 2007 to the summer of 2013 to the summer
15 of 2018. We're talking 2007 to 2018 before we
16 finally implement the 2013 BMP manual? You've got
17 to be kidding me.

18 Another interesting comment today,
19 when Wayne got up early on and did his
20 presentation, he said, "We think this is a great
21 change to the permit because it makes it clear and
22 easy to enforce."

23 Go back and read what the prior lawful
24 approval standard looks like now compared to what
25 it was before. When you look at the footnote in

1 the 2013 permit that talks about what qualifies as
2 a prior lawful approval, it tracks directly on
3 what the status of the law is.

4 There's one case that controls this.
5 It's very clear. It says you need two things:
6 You need a permit, and you need to break ground.
7 That's easy. There's nothing easier. As a matter
8 of fact, when I'm not up here representing
9 environmental groups, do you know who I represent?
10 Developers.

11 And for over a year now, those
12 developers have been asking me -- that's what they
13 do when they get these crazy regulations coming
14 down through the Board to the City. They come to
15 me and say, "What do I need to do?" Since January
16 of last year I've been saying, "You need to comply
17 with the 2013 manual. It's being devised. Here's
18 a draft of it. Design your project to comply with
19 that."

20 The manual was approved in June of
21 this year. Let's talk about -- anybody that
22 hasn't planned their project to comply with that
23 manual, the price should be paid by that applicant
24 not by the community, who should be able to rely
25 on these ratcheted-down standards that just bring

1 us to swimmable and fishable waters.

2 So these clients that I have, they
3 design their projects not knowing for sure when
4 they're going to get final grading approval. I'll
5 tell you what, we just finished a year-and-a-half
6 lawsuit on one of them. We got the ruling last
7 month. We can finally pull a grading permit, and
8 they're saying "Are we going to get our grading
9 permit by December 31st?"

10 I said, "Go back and look at your
11 engineering. We designed the project to comply
12 with the new manual. We don't even have to worry
13 about it." That's what a prudent, responsible
14 developer would have been doing for the last year
15 that we've been talking about this.

16 Instead, it's not just December 24th.
17 It's an additional 90 days, as per staff. And if
18 we give into the BIA and the County, we're talking
19 another 180 days so they can shoe-horn as many
20 development projects as possible into a standard
21 that we know doesn't protect water quality
22 standards.

23 Mr. McSweeny got up here and talked
24 about the BIA folks who call him up, who blow up
25 his phone, people up in Oceanside who don't know

1 what the standard is.

2 I'm sorry, but the developers I
3 represent aren't part of the BIA, and maybe we've
4 identified the problem. When they call me up, and
5 they say "What's the standard," I say, "Do you
6 have your grading permit? Have you broken
7 ground?"

8 Afco is a very clear legal standard.
9 It's a very bright-line standard that gives us all
10 certainty. The reality is, there are very few
11 projects, but they are very big, who really need
12 this prior lawful approval language.

13 During the workshops, we had a very
14 simple request from the environmental community.
15 We said, "You know what, you guys are the best to
16 tell us how many projects you have in the pipeline
17 who might potentially take advantage of the prior
18 lawful approval language." "Just give us a
19 database so that we can talk apples and oranges.
20 Big projects, small projects, 10 projects, 100
21 projects. Give us some answers."

22 How many months later are we still
23 saying we don't even know how many projects would
24 be affected by this. And per the County's
25 representation today, the next six months or

1 actually the next nine months -- seven, eight,
2 nine months, we're going to shoehorn as many
3 projects as we can in there. That is not what
4 this was intended to do. The notion of prior
5 lawful approval is to say, "If you've contributed
6 significant dollars and you have diligently
7 pursued your project, we're not going to pull the
8 rug out from under you."

9 But the fact that the 2013 permit had
10 such a huge tail to produce this BMP manual, and
11 we had so much time after approval in June of this
12 year to vet it and bring it to effective date in
13 December, I'm sorry but we have given you enough
14 time.

15 So I would leave you with the simple
16 notion that the easiest, most simple, most
17 legally-viable solution to this is to go back to
18 Afco and tell the world "If you've got your
19 grading permit, and if you've broken ground by
20 December, you can take advantage of the 2007
21 hydromod BMP requirements." "If not, it's on you.
22 Redesign your project."

23 We all went through the recession. My
24 clients did. A lot of the people who are trying
25 to take advantage of this, the law changes

1 sometimes. Planning changes and regulations
2 change.

3 This is not a circumstance where we're
4 can say we're protecting water quality standards
5 by allowing an untold number of applicants to take
6 advantage of a standard that, coming up on 10
7 years now, we've already decided isn't good
8 enough.

9 CHAIRMAN ABARBANEL: I've heard what
10 you said, and I'd like you, if you would, to
11 repeat your suggestion of what in the tentative
12 order, putting aside the typos and changes, do you
13 recommend that we do not approve?

14 MR. GONZALEZ: Section big E(3)e
15 1(a)12. It's entitled structural BMP approval
16 process under priority --

17 CHAIRMAN ABARBANEL: These are the two
18 items that Mr. Chiu recommended approval of, or
19 his staff did in addition to the time --

20 MR. GONZALEZ: It's the prior lawful
21 approval language. It's the generic, easy way to
22 describe it.

23 CHAIRMAN ABARBANEL: I have to say,
24 I've gotten a little bit of cross-talk between
25 prior lawful approval and the alternative

1 compliance.

2 Are you speaking to both of those?

3 MR. GONZALEZ: The alternative
4 compliance has to do with your development of an
5 alternative to meeting water quality standards.
6 That is the big picture. I'm talking about
7 individual projects being able to take advantage
8 of the old BMP manual.

9 CHAIRMAN ABARBANEL: Okay. Thank you.

10 Last but absolutely not least, we have
11 interested persons, and I would say tenacious
12 persons, having waited all this time. For each of
13 those persons who have submitted a card, we would
14 offer you three minutes to speak.

15 Unless there's a particular order
16 here, I was going to start with Ms. Hunter.

17 MR. MCSWEENY: I have a question. For
18 those of us that had a little bit of time left for
19 rebuttal, when would we be able to do that?

20 MS. HUNTER: Good late afternoon.

21 Laura Hunter representing Escondido Neighbors
22 United, and yes, I did take the oath. I have a
23 couple points I wanted to mention today.

24 I agree with my cohorts at Coast
25 Keeper and would urge you to adopt their

1 recommendation. First thing I want to touch on, I
2 want to offer a realty check on this really
3 ridiculous letter that you received about Safari
4 Highlands Ranch. It basically was a not-so-veiled
5 threat, completely inappropriate attempt to
6 intimidate you out of doing a lot of your job.

7 CHAIRMAN ABARBANEL: This is not on
8 the specific item that they're discussing?

9 MS. HAGAN: It refers to a comment
10 letter.

11 MS. HUNTER: Yeah, and I do think it's
12 instructive.

13 So first of all, they don't have a
14 project approved of 550 units. It doesn't have a
15 value of 500 million dollars, which they're
16 threatening you have to pay them back. They don't
17 have an annexation approval. They don't have an
18 environment document. They have nothing. They
19 have ink on a piece of paper, really. And they
20 own the land.

21 They don't even have the entitlement
22 for the 26 homes they could build under their
23 current zoning, which is the County's general
24 plan. They have a lot of fantasy based on pure
25 speculation. But I think it's very instructive

1 because if you want an example -- one of the
2 reasons you should abandon this whole safe harbor
3 situation, here's Exhibit A. This is how they
4 view it.

5 I want to say that, in this case,
6 anyway, a short leash with clear direction is the
7 way to deal with these kinds of entities. The
8 second thing I wanted to speak to is, I have been
9 a member of the San Diego River Water Quality
10 Improvement Consultation Committee, and I would
11 like to touch on a couple things.

12 Regional Board Member Olson, I would
13 like to speak to your request of "Do you think
14 people aren't serious about it?" I've got to tell
15 you, there's a whole lot of RBA, a lot of really
16 bad attitude about it. Up in Escondido, you need
17 to know a majority of the City Council directed
18 their staff to deliberately weaken their
19 recommendation for the water quality improvement
20 plan to make them the minimum to get by for
21 compliance.

22 One of them said, "Let's just not even
23 comply and see what happens." Another one of them
24 says "Mother nature will take care of it."
25 Bunches of name calling and that kind of thing.

1 Not everybody is serious about doing it, I'm
2 telling you.

3 More flexibility is not going to help
4 us get to where we need to go. We really have to
5 say focused on those water quality improvement
6 plans. We need to focus on that. This safe
7 harbor business is a distraction. It's confusing.
8 It betrays the promise of what we were trying to
9 get.

10 I've been around a long time, too, and
11 I think it's probably bad news, but the entities
12 are not innocent victims that are being
13 promulgated on. These are the entities with land
14 use authority. They make the decisions about
15 whether they should put these developments here,
16 should they issue business licenses again and
17 again to companies that don't comply. They have a
18 responsibility here, and it's not just, you know,
19 something that they're bystanders to.

20 Thank you very much and please remove
21 the safe harbor.

22 BOARD MEMBER STRAWN: Mark West. And
23 that will be followed with Jennifer Olm.

24 MS. SACKETT: Hi. My name is Mandy
25 Sackett. I'm here to speak on behalf of Mark

1 West. He fractured his C-4 and had to go get an
2 X-ray today. I also have a speaker card. I don't
3 know if you want to add my time here, as well, to
4 do my own. I'll start with Mark's comments here.
5 "Esteemed Board members, ladies and gentlemen of
6 the public, good afternoon. My name is Mark West.
7 I'm a retired naval officer, chair of Surfrider
8 San Diego and resident of Imperial Beach.

9 "I appreciate the opportunity to speak
10 with you today on behalf of SurfriderSan Diego.
11 Surfrider is dedicated to the protection and
12 enjoyment of oceans, waves and beaches through a
13 powerful activist network. When I say 'activist,'
14 I mean people who take the time off to miss work
15 and to miss time with their family to be here
16 today.

17 "Our membership is served by
18 volunteers who dedicate their free time to
19 continue to voice their approval of the 2014 MS4
20 storm water permit as it was originally designed.
21 Our members do not support an alterative
22 compliance without specific time limits and hard
23 outs. We need more guidance and we need it in the
24 permit. Clean water compliance, in our eyes and
25 through the eyes of water users throughout San

1 Diego, means water safe to swim, fish in and
2 recreate in and on.

3 "Our members are comitted to
4 preserving water in San Diego. Surfrider
5 encourages people to get involved with projects
6 like these because we believe in the promise of
7 the democratic process.

8 "The permit and inclusion of
9 alternative compliance which you are discussing
10 today is one that will receive taxpayer money and
11 the public input needs to be respected throughout
12 the process.

13 "In 2013, we passed a landmark permit.
14 Please do not allow us to backslide on it.
15 Surfrider San Diego enjoys our working
16 relationship with staff from the city and counties
17 associated with managing our coastline and
18 multitude of issues associated with clean water in
19 iconic the San Diego coastline.

20 "I've participated in conferences that
21 have attracted people from all over the world to
22 discuss items that threaten waves. One very
23 interesting topic that is continually discussed is
24 surfonomics. It's a funny word but a growing area
25 of study relating to economic impact surfing has

1 on surfing communities. Studies being conducted
2 worldwide found the industry associated with
3 surfing are the biggest on local economy.

4 "Do we want to jeopardize the water
5 quality of San Diego? I think not. Surfrider San
6 Diego objects to any situation where Copermittees
7 are allowed to come up with a plan, implement and
8 adopt it, and be deemed in compliance with water
9 quality standards. Clean water is clean water and
10 nothing less. We take protection of the ocean
11 waves and beaches seriously.

12 "Lastly, as a resident of IB, where
13 clean water is a constant battle, please do not
14 take the teeth out of this permit. Our waterways
15 are dirty, and they will get dirtier if we do not
16 hold Copermittees accountable. So thank you very
17 much and have a great day."

18 BOARD MEMBER STRAWN: Do you want to
19 take your time now?

20 MS. SACKETT: My name is Mandy
21 Sackett. I am a resident of the City of San
22 Diego. I live in Point Loma. I'm the chapter
23 manager at Surfrider San Diego and also an avid
24 and recreational of the coast -- should I start
25 over? I know the clock hasn't started?

1 I spend the vast majority of my free
2 time in the ocean. I spend all my time in the
3 water at Sunset Cliffs every possible chance that
4 I get. So I'm always very well aware of the water
5 quality at any given time, especially in Point
6 Loma. As someone with continual health problems.
7 I consider myself a canary in a coma. Because I'm
8 sick immediately. So thank you very much for your
9 time and for listening to me today.

10 I have four main points I want to make
11 here. I'd like to applaud the regional board for
12 their wisdom and prudent decision-making regarding
13 the 2013 storm water permit and the elimination of
14 safe harbor clause. If you do feel like the State
15 is mandating a means for alternative compliance, I
16 would also encourage you to stand firm and please
17 acknowledge the differences between San Diego and
18 the Los Angeles region. We don't have the same
19 level of TMDLs. Please make sure there are strong
20 limits and automatic outs in the alternative
21 compliance methods so applicants cannot hang out
22 in this interim process forever.

23 My second point is, we object to any
24 situation where simply coming up with a plan and
25 implementing and adopting it is deemed in

1 compliance with water quality compliance.
2 Compliance means water are safe and clean to
3 recreate in, period.

4 Copermittees continue to have the same
5 complaints they have had for the last permit
6 cycles. Including things like cost considerations
7 and difficulty yet we're still not in compliance
8 with the Clean Water Act. There's no room for
9 leeway and we do not see any real water quality
10 improvements. We, the public, are here demanding
11 protection and actual improvement of our water
12 quality.

13 As the agency is tasked with
14 protecting the use of our water, I urge you to
15 please hold the line in protecting water quality.
16 Lastly, as I mentioned, I rely quite heavily on
17 the coast. I surf, swim kayak, eat fish, and we
18 need strong controls to protect our water bodies
19 and to make sure the water quality standards are
20 (inaudible), not a plan in place to kick the can
21 further down the road.

22 Hold the line today and amend the
23 alternative compliance to make sure it's not a
24 safe harbor. We need strict guidance and hard
25 outs. Thank you very much.

1 BOARD MEMBER STRAWN: Jennifer Olm.

2 UNIDENTIFIED SPEAKER: I will read
3 Jennifer Olm's comments. Jennifer Olm is a
4 resident of Rancho Penasquitos, a Surfrider
5 volunteer, and also a mom. She was here to ask
6 that you make sure alternative compliance is not a
7 safe harbor, while a Surfrider volunteer, I am
8 first a mother. My family likes to swim at to
9 Torrey Pines, kayak in mission bay and care very
10 much about all of our beaches.

11 I congratulate the Board on developing
12 a watershed permit that allows for focus, time,
13 enforcement and education. We need to ensure that
14 any alternative means of compliance specific,
15 measurable and transparent. Trying isn't enough.
16 We are capable of rigorously ensuring our quality.
17 Don't take the back bone out of this permit.

18 She's also a volunteer who has read
19 her local water quality improvement plan in detail
20 and has comments for that. That's it for her.

21 BOARD MEMBER STRAWN: Next I think I
22 have Sam Blick.

23 MR. BLICK: My name is Sam Blick. I'm
24 the author of the letter Laura was referencing. I
25 didn't mean to offend you. I had about an hour to

1 get that letter in. The situation I was presented
2 with was "what happens if you can't build at all
3 on the property?" And my engineer was telling me
4 you can't build at all. It's not a matter of
5 complying with the law. That's what our rash map
6 look like on this property. You get nothing. I
7 think if someone told Laura she couldn't use her
8 house at all, she wouldn't like it. The law says
9 it's not fair if you take it all.

10 All right. I bought this property
11 with my partner, and our approach was simply
12 "We're going to comply with the law, whatever it
13 is." We're envisioning a house that might cost 5-
14 or \$600,000. We know if we comply with all the
15 provisions -- the house might cost a million; who
16 knows after it's all done. But that's all right.
17 We're going to comply with the law whatever it is.

18 We looked at the general plan, what
19 does it allow. We looked at the specific plan,
20 what does it allow. We're about three years into
21 our process with the City. Our tentative map and
22 our EIR process is being considered. It's not
23 approved; it's true. But the project is virtually
24 designed by the City, everything they want, every
25 curb, the way it's designed is what they want. We

1 did what they want. We took 70 percent of the
2 property and gave it to the public. We're left
3 with 30.

4 It's all right. We still get to build
5 the houses. People still get to buy those houses;
6 they're just going to cost more. That's how I've
7 approached it. That's the way we have to approach
8 it. So we run across this condition. We look at
9 this. I submitted a letter to you. That's the
10 rash map. That condition says if you abide by
11 those coarse sediment standards, you get to build
12 nothing. Nothing is very different than a
13 500,000-dollar house. We can live that. If the
14 conditions are so bad it doubles the price of the
15 house, we can deal with that. People will buy it.
16 They need the housing. If it's worth nothing, you
17 can't build. So I had to submit a letter. I'm
18 sorry it was so rough, but it's kind of a rough
19 statement because it's a rough result.

20 I know you don't want to do that.
21 I've been here all day. Nobody is thinking
22 anything but clear water. You're not thinking of
23 destroying property value. You're not thinking
24 anything along that line. You're doing your job.
25 That's how we designed it, too. I'll say, in

1 closing, we've contemplated all the water gets
2 reused, each house gets its own water recycling.
3 We've tried everything. It's expensive, but we've
4 done it all. We've done it with water quality in
5 mind. So I would urge you to consider that and
6 not deny any use of the property whatsoever.
7 That's not right. Thank you.

8 BOARD MEMBER STRAWN: Scott Graves.

9 MR. GRAVES: Thank you, Board members,
10 for allowing me to speak. I'm a resident that
11 lives in Sanpas Falls, speaking as a concerned
12 citizen who would like to respond to Mr. Blick's
13 late submission. I found it ironic he said he
14 only had an hour to compose his letter when there
15 was a 45-day comment period. I think that theme
16 of "too little, too late" or "I want more time.
17 Want more time" has been seen throughout the day.
18 In my opinion, the veiled threat of litigation has
19 no merit. Sifting through the data of looking up
20 parcel numbers and previous sales and assessor tax
21 information available to the public, Concordia
22 purchased over 1,000 acres for approximately \$7
23 million, based on the tax assessor's taxable
24 values.

25 When they purchased this property, and

1 as it currently stands, they're entitled to build
2 26 or 27 homes. The property has not been annexed
3 by the City of Escondido. The final EIR has not
4 been completed, so their claims of work based on
5 Safari Highlands Ranch completed value, in his
6 words, \$500 million are quite a stretch,
7 especially in the light of the exorbitant number
8 of exceptions in hopes of getting approval.

9 Mr. Blick said they're in compliance.
10 The City hasn't looked at their plans. The City's
11 regs are you can't build anything on a grade
12 steeper than 12 percent. They're asking to do it
13 on a 15-percent grade, which is extremely steep.
14 There's all sort of waivers they're asking for,
15 grading waivers. All the different ratios of
16 grading exceptions. I find it difficult to
17 believe this is in compliance.

18 The developers' gamble was especially
19 high risk similar development on this land was
20 previously looked at and the project was withdrawn
21 because they rejected the development and the
22 general plan. The general plan and the
23 development of the general plan cost the county
24 about \$18 million with significant public input.
25 Please don't let developers intimidate best

1 practice when it comes to water.

2 BOARD MEMBER STRAWN: Next I have
3 Rebecca Andrews.

4 MS. ANDREWS: Good afternoon, Chair,
5 members of the Board. I'm an attorney with the
6 law firm of Best, Best and Krieger. We represent
7 the San Diego Airport Authority, the cities of
8 National City and Chula Vista. The cities and the
9 Airport Authority have a pending petition before
10 the State Board regarding the 2013 permit, and its
11 lack of a compliance pathway.

12 So we submitted a green card today in
13 support of the amendment and would like to thank
14 the Board and Board staff for all the effort
15 that's gone into developing the compliance
16 pathway. We believe the compliance pathway will
17 enable the Copermittees to work together and
18 develop a prioritized approach to addressing water
19 quality challenges and to coordinate their efforts
20 towards improving water quality.

21 Thorough planning is essential to
22 developing an effective water quality improvement
23 plan. Developing an effective water quality
24 improvement plan takes time. The State Water
25 Board's recent order reflects an intent to include

1 that time to develop an effective plan within the
2 compliance pathway.

3 So as you can imagine, the cities of
4 National City and Chula Vista and the Airport
5 Authority are requesting what they call an
6 "interim compliance pathway," by one of the
7 environment groups has been called a "grace
8 period," as part of the safe harbor. Whatever we
9 call it, including that period of time within the
10 compliance pathway recognizes the importance of
11 the development of the WQIP.

12 The Airport Authority, Chula Vista and
13 National City, as part of the San Diego
14 Copermittees, join with Orange County and
15 Riverside County in requesting that this Board
16 extend the compliance pathway to cover the time
17 period where the WQIP is being developed.

18 BOARD MEMBER STRAWN: Thank you. I'm
19 sorry I didn't get you in with the Copermittees
20 earlier.

21 Mr. Penzick.

22 MR. PENZICK: Good afternoon, Board
23 members. My name is Jerome Penzick, 14245
24 Dalhousie Road, San Diego California. I'm also a
25 member of the Surfrider Foundation. I would like

1 to thank the Board for your work and allowing me
2 the opportunity to address you. I recently
3 retired from the federal aviation administration.
4 I have extensive experience with methods of
5 alternative compliance. In aviation, alternative
6 compliance is a very, very serious issue.
7 Typically, a certificate holder will request
8 something like an air-worthiness directive or
9 relief from a regulation. They have to go through
10 an extremely extensive and rigorous process based
11 on two important concepts: Is the alternative
12 method of compliance in the public interest? And
13 does the alternative method of compliance
14 establish an equivalent level of safety?

15 Now, trying to stress the
16 applicability, would the equivalent level of
17 alternate pathway provide for an equivalent level
18 that the original requirements would meet. That
19 would be the task before the Board and staff.

20 I would like to compliment Mr. Chiu in
21 his earlier remarks today; it shows he's focused
22 on the issue in the work he's already established.
23 Hard criteria must exist for realistic acceptance
24 of milestones; there's no way around that.
25 Alternative methods, in order to be successful,

1 milestones must be are meaningful. They must show
2 real progress. The end result is not reports.
3 The end result is not steps to get there. The end
4 result is clean water at the beach, things that we
5 can surf in.

6 What I would offer to you is what
7 would look like failure would be for San Diego to
8 turn into New York. I lived, for a while, in Long
9 Island for work. I can't describe how poor the
10 quality of water at the beaches are at someplace
11 like Rockaway Beach in Queens, Point Lookout in
12 Nassau. My son got contact dermatitis there. We
13 came back to California, and I fulfilled a
14 longtime dream to learn to surf with my boys. And
15 I can't describe to you how pleasant it was to
16 surf in Solana Beach at Beacons in clean water
17 with good friends. So these are the tasks before
18 you.

19 I thank you for your work and thank
20 you for the opportunity to speak today.

21 BOARD MEMBER STRAWN: Next, I think I
22 have a card from Summer -- maybe it's Smith. She
23 has ceded her time to Julie Chunher.

24 MS. CHUNHER: Good afternoon. I'm
25 Julie Chunher. I'm the policy manager for

1 Surfrider San Diego. Thank you for your time.
2 And I wanted to call your attention to our 10
3 members and volunteers who took time away from
4 work to be here and show their concern for this
5 important issue.

6 I'd also like to take a minute to
7 sincerely applaud your staff. This has been
8 time-consuming. They have been professional.
9 They have been very thorough, and I've been
10 thoroughly impressed. Whatever decision is made
11 today, they deserve a round of applause. And I
12 want to applaud you for your decision in 2013.
13 That was a hard decision to come to.

14 And instead of my talking points, I'd
15 like to respond to some of the things we've heard
16 today. We heard early that the purpose of
17 alternative compliance is to provide clarification
18 and structure to this interim process to figure
19 out when it starts and stops.

20 Unfortunately, as it's currently
21 written today, I don't think that happens. I
22 think it continues that iterative process. And,
23 you know, we heard a lot about the cost of
24 compliance. I think we should all be much more
25 concerned about the cost of noncompliance.

1 I said it in 2013, and I'll say it
2 again today. Where is the number of lawsuits that
3 everybody is so afraid of? These are meaningful
4 steps in the right direction, but at the same
5 time, we need to maintain accountability to
6 increase motivation to make hard and expensive
7 steps.

8 I'm a parent now, as well. I have a
9 14-month-old, and he's starting to learn to test
10 his limits. He likes to see what he can get away
11 with. It's better for him, his safety, and my
12 sanity to have certain limits with him, set clear
13 boundaries. And I see today we're hearing a
14 little bit of limit-testing. What can we get away
15 with? So I would encourage you to hold to those
16 limits; it's better for everyone.

17 You also heard in the comments today
18 that people need more time for plans. They want
19 compliance while they're planning, and they want
20 compliance if the plan doesn't work out. Where
21 does that leave the public?

22 History is the best indicator of
23 future behavior. For history, we have to look at
24 what's happened in the previous permit cycle. We
25 have to look at what happened in the WQIP process

1 recently, and we have the tendency, as city
2 council is saying, to do the bare minimum. So we
3 need to be able to keep everyone motivated.

4 We also heard today that it's going to
5 take years to come into compliance. Guess what?
6 It hasn't been in years. We need to maintain that
7 accountability. That's exactly why there was a
8 paradigm shift in 2013, so I hope we can maintain
9 that.

10 We also heard, "Hey, don't worry about
11 it. Water quality is important to us, too. We
12 will take care of it. But we also have lots of
13 priorities, whether its police cars or other
14 things."

15 I think that's exactly the point. You
16 guys are charged with maintaining water quality.
17 We're trying to make that more of a priority.
18 Decision-makers have to make hard and expensive
19 decisions, and not just to look at storm water and
20 "Oh, well whatever is left over, that's an
21 expensive problem we have to deal with."

22 If you look at it in a different
23 context away from storm water, when you're trying
24 to protect something, the regulations and laws
25 usually increase. For protecting children, we

1 have Megan's Law. I don't see how relaxing the
2 process is going to be make water cleaner.

3 At this point, there's not enough
4 guidance in the permit to do proper analysis. We
5 need that guidance in the permit and not after the
6 fact. I ask you to remove the safe harbor
7 alternative compliance today. Postpone it until
8 the EPA has done a reasonable assurance analysis,
9 and wait until 2018.

10 If you're going to do it, I suggest it
11 be really thorough and done right. That's our
12 request.

13 Thank you for your time and
14 consideration.

15 CHAIRMAN ABARBANEL: I believe there
16 are some speakers that have some additional time.
17 If anyone would like to speak, Gary will tell you
18 how much additional time you have, if you come up
19 and you request that.

20 County of Orange had a minute. I'll
21 extend that to a 1:10 just for you.

22 MS. SKORPANICH: So it's not 7:00 p.m.
23 that's a good thing. I just wanted to close up
24 and kind of wrap up a very brief period of time.
25 Harping back to 2013, 2011 when your staff

1 undertook the initial workshops to develop this
2 permit and what they've been saying all along, and
3 what I think they actually have achieved with this
4 permit is a permit that's aspirational. It's
5 something to inspire, to motivate, to incentivize
6 the permittees to do even more, to take on even
7 more than what the Clean Water Act requires of us.

8 Along with that was a desire on your
9 part as well as your staff to allow for a permit
10 that allows creativity and innovation, but most
11 importantly for the permittees, it allows
12 prioritization. I know we touched on this
13 earlier, but I don't know that we really drew a
14 fine point with prioritization.

15 If we have the interim compliance,
16 then we have the freedom to prioritize what those
17 really important water quality objectives are we
18 need to work on and focus on. Without that, we
19 really can't sort of leave the low priority, the
20 things that we know are above natural conditions
21 and so forth.

22 So I'd like to just draw that point
23 that it ties our hands considerably on being able
24 to do that prioritization process and focus on
25 those most important objectives. It's not unlike

1 what the State of California did, actually. Back
2 two governors ago, the state set up the Clean
3 Beaches Initiative. They said we know beaches are
4 a high-priority water body. They where are people
5 recreate the most. We want to put emphasis on
6 that. They directed grant programs there. To
7 this day, the beach water quality task force is
8 meeting today. It's made tremendous difference,
9 not only in Southern California but up and down
10 the coast of California. It shows you what you
11 can achieve if you are able to do that
12 prioritization.

13 The second point I would like to make
14 is that your staff is looking to have a credible,
15 durable and transparent water quality improvement
16 plan developed. This will not be a safe harbor,
17 if you will, a get out of jail free card. The
18 permit also establishes some meritocracy. How do
19 you earn interim compliance? The permittees, they
20 have proposed some enforceable milestones during
21 the development of the water quality improvement
22 plans, but I that addresses those concerns.

23 What we really all want is one of the
24 other issues that you and your staff set out on
25 this permit, which was to make it so we could have

1 collaboration. We want to work together and begin
2 to make more progress on water quality.

3 I thank you very much for your time
4 and consideration today.

5 MR. MCKIBBON: If I didn't say it in
6 my original comments, I want to thank the staff
7 again. It's been comforting to me as the point
8 person of my industry to know if we have concerns,
9 I can get on the phone or e-mail and get an answer
10 or get an appointment. I appreciate working with
11 you folks and your professionalism.

12 Matt O'Malley talked about the water
13 quality improvement plans. Just so each you know,
14 each one of those came in between 700 and 1200
15 pages each, so that's like Warren Peace times
16 eight. I know you've got a limited number of
17 folks in your organization, same thing with us.
18 To try to go through every one of those, it's time
19 consuming.

20 Both the Copermittees and myself, we
21 laid out for you a reasonable rationale for why we
22 needed more time, to get tools finished, put them
23 in the tool box, and get the job done right. For
24 us, it's more important to get it done right than
25 to just get it done.

1 As far as the need to time, we, like
2 the environmentalists, believe in the CEQA
3 process. The environmentalists know that for
4 CEQA, you have to adopt ordinances and those take
5 time.

6 I thought John Van Ryan did a very
7 good job of laying out exactly, in the perfect
8 scenario for them, how long it takes to do that.
9 Finally, the Afco decision was mentioned here, and
10 that decision was 40 years ago, and land use has
11 gotten significantly more complex since that time
12 with development groups and grandfathering
13 provisions.

14 Again, I appreciate your time.

15 CHAIRMAN ABARBANEL: Thank you very
16 much. We now have time for staff response,
17 closing remarks. For me, it would be helpful if
18 you could put up the slide with the very specific
19 indicated changes in the tentative order. You had
20 one that addressed alternative compliance, one
21 that addressed -- and then at the bottom was
22 errors, and these are things, if I understand, are
23 in addition to the main theme of the day, about
24 which we've heard very little, which is the
25 enrolling of the County of Riverside as part of

1 the regional MS4.

2 What was in the box.

3 MR. CHIU: So this was the summary.

4 CHAIRMAN ABARBANEL: I think we have
5 heard primarily about items in the box. Riverside
6 county didn't show up here and say "we don't want
7 to play." I didn't hear any objections. I
8 thought I heard somebody say you did it right.
9 You had very specific language for these two
10 items, if you could put that up.

11 MR. CHIU: I didn't really put any
12 language more than a kind of a summary of how we
13 responded. So I think you were looking at
14 somebody else's presentation. There were a lot of
15 more dense slides than mine. In this particular
16 situation, I think you heard from both sides on
17 this: What you heard today was actually very
18 similar to what we went through during the public
19 workshops. You heard a lot of lot of positions
20 being put forward, a lot of rationale for those
21 positions, a lot of justification for making
22 specific types of changes or incorporating certain
23 provisions into the permit. We did our best to
24 try to find the proper balance between the
25 different perspectives, and what we came up with

1 during or after the workshops or as a result of
2 the workshops or for the prior lawful approval
3 language, we felt that we had done our job right.

4 It's not exactly as the environmental
5 community would like. It's not exactly like the
6 way the development community and the Copermittees
7 would like. Obviously, the Copermittees are now
8 willing to accept it, but the environmental
9 community is still asking for some of the changes
10 that they requested. Even during those workshops,
11 I think our position is still and our
12 recommendation is still to maintain the language
13 that we've put forward for you to consider for
14 adoption today.

15 I'm going to take this opportunity to
16 kind of touch upon the BMP design manual issues
17 that have been raised by the County and the
18 development community, and it touches upon the
19 prior lawful approval language, as well.

20 The Copermittees are asking for
21 additional time to make changes, and I think they
22 provided a slide that shows the justification for
23 that is they will need all this time for their
24 process, the changes that they're going to need to
25 make are fairly significant. It's because we're

1 changing the definition of prior party development
2 process. We've changes the definition of
3 redevelopment and we added prior lawful approval
4 definition language in there.

5 We informed the Copermittees of this
6 upcoming language back in June. We issued a
7 letter to them informing them of the language that
8 we knew would be incorporated into the permit, and
9 it was also at their request that we move this
10 board meeting up sooner so they could have more
11 time to make changes to their BMP design manuals.

12 The redevelopment definition was not
13 changed; it was clarified. And the prior lawful
14 approval definition, that simply gives them the
15 parameters in which they would apply the fourth
16 term or 2007 MS4 requirements for developments
17 versus the regional MS4 permit requirements for
18 developments. So they're just basically trying to
19 delay, in our estimation, the effectiveness of
20 these new requirements. I think we're being very
21 reasonable when we said we would provide them an
22 additional 90 days to make those changes, and it's
23 90 days from the date of the adoption of the
24 permit changes, not 90 days from the December
25 expected effective date. It would make it

1 February 2016 by which they would have the
2 effective date of their BMP design manuals in San
3 Diego county.

4 So I understand that everybody wants
5 more time, but we have actually provided them
6 quite a bit of time to prepare and time to get
7 things in place in order to have this adopted. So
8 simply asking for more time is, I think, a default
9 position that many people take. I think you've
10 heard it throughout most of the requests today for
11 more time for everything.

12 I think in this situation we were very
13 reasonable. We plan on issuing a letter from RGO
14 directing the Copermittes to push back their
15 effective date for the BMP design manual to
16 February 16, which is 90 days from today and that
17 should be sufficient time to make changes to the
18 definition of prior development project. I
19 counted the words that actually is or will be.
20 They have to add 20 words to the definitions. So
21 they're not going to have to have to do a song and
22 dance and go on a road show in order to tell
23 everybody exactly what it needs to be. It's 20
24 words.

25 The redevelopment definition, I think

1 we changed, like, six words. It's not a whole
2 lot. The prior lawful approval is really just
3 giving them some parameters now to work with.

4 So that is the prior lawful approval
5 language. Let's talk about the coarse sediment
6 yield issue. The coarse sediment yield issue has
7 come to light in recent months. As you've heard,
8 we've had several discussions with the development
9 community, with Copermittees on this issue. From
10 the compliance standpoint, their BMP design
11 manuals are in compliance with out permit
12 requirements. It includes all the language
13 necessary to allow prior redevelopment projects to
14 implement measures to address coarse sediment
15 yield areas, such that there is no net impact to
16 the receiving water. Avoidance is the first and
17 preferred method of providing no net impact to the
18 receiving water, but there are alternatives, and
19 they are currently developing those. There is one
20 being proposed for the City of San Diego's BMP
21 design manual that could be used as a model for
22 other jurisdictions.

23 That doesn't mean there aren't other
24 methods that can be developed. The guidance that
25 can be developed in future months or future years,

1 is simply going to be an addition or attachment to
2 the BMP design manuals. I don't think we need to
3 delay the effective date to allow for guidance to
4 be developed, but if they're looking for
5 additional clarity and they want to delay the BMP
6 design manual for clarity, we wouldn't recommend
7 that. We believe we need to have these BMP
8 performance standards and criteria in place as
9 soon as possible and implemented on development
10 projects as soon as possible in order to be
11 protective as possible for water quality going
12 forward.

13 I will move on to the alternative
14 compliance pathway option. Again, you've heard a
15 lot of things about this particular issue, both
16 sides, and, again, it's very similar to what we've
17 heard during the workshops. I think Board Member
18 Olson heard a lot of this. Board Member Morales
19 has heard a lot of it, and now the rest of the
20 Board has heard pretty much the same things,
21 couple tweaks here and there. And you know, I
22 think there's -- this is one of those issues where
23 the stakeholders are looking to us to provide the
24 leadership on this issue and looking to us to make
25 a decision on how to move forward on this

1 particular issue.

2 In listening to what we heard today
3 and during the workshops, I think I fully agree
4 with what the environmental community says. I
5 really do. But then I also agree with a lot of
6 what the Copermittees say, and so we're trying to
7 strike a balance, again, of what we could do as a
8 board to provide a middle ground, a pathway
9 forward that could be workable. And the language
10 that we came up with was what we thought was the
11 path forward. You may have heard annual
12 milestones, the environmental community ask for
13 that. We didn't have it there before. That was
14 to provide that additional level of accountability
15 but the way they would like to see it is those
16 milestones are essentially are your ticket out of
17 the program. If you don't meet a milestone, do it
18 for two years or three years or whatever, you're
19 automatically kicked out, and you have to figure a
20 way to get back in.

21 But we agreed there needed to be some
22 additional level of accountability and a way to
23 track progress that we as regulators are given the
24 awesome responsibility of trying to make sure that
25 our water quality is going to be protected,

1 preserved, restored, and enhanced. We needed to
2 figure out how to make sure that we could keep our
3 finger on the pulse, and those annual milestones
4 were our way of doing that. Giving in a little
5 bit to what the environmental community requested,
6 and, again, every time we give something to
7 someone, somebody else doesn't want it. Trying to
8 figure out what we could do. What we have given
9 to the Copermittees is the alternative compliance
10 pathway.

11 What we have added, which they don't
12 necessarily want, is additional milestone
13 requirements that creates that additional
14 transparency and rigor. I think we've struck the
15 balance. I hope you agree.

16 And that's the milestone issue, but I
17 also want to get to this being deemed in
18 compliance during preparation. Again, this is one
19 of those things where we try to find the balance.
20 On the one hand, we have the environmental
21 community saying "We don't want it at all. It's
22 not fair to us. You put this in there. We lost
23 all ability to drive the conversation."

24 On the other hand, Copermittees are
25 telling us "We are always at risk. We need to

1 figure out a way where we reduce that risk."

2 We agree. We know there's a lot of
3 risk. We agree there has to be a middle ground.
4 So we provided an alternative compliance pathway
5 as that middle ground. We thought it was a
6 balanced approach by providing compliance during
7 plan implementation but not during plan
8 development, and so that's where we came down on
9 that issue. We thought that was the right
10 approach. And while we have other examples of
11 alternative compliance pathway options in the
12 state, I like to think we lead rather than follow.

13 So I think we need to set the pace.
14 We need to figure out what we, as a board, believe
15 is the right course, not necessarily believing
16 that other boards should dictate our way of doing
17 things. The State Board order that does not
18 dispute the path that L.A. took does not say we
19 have to use L.A.'s approach. It simply says L.A.
20 can do it in the way they want. That doesn't say
21 all boards must do it this way. I just want to
22 make sure we understand that what we do here is
23 not what L.A. does.

24 And that kind of takes me to my other
25 point about the analysis portion of it. I know

1 there's a lot -- there is some concern as to the
2 lack of specifics as what L.A. had, but I think
3 our approach also provides a more flexible
4 approach that allows the public, then, to be part
5 of the process and part of the discussion, where
6 the L.A. approach doesn't quite lend itself to
7 that as much, because of the specifics that have
8 been incorporated and the very specific methods in
9 which they are allowed to do their analyses.

10 The other aspect of that is, these
11 particular analysis methods or these models are
12 really for fluid and water body. Our permit
13 actually aspires to more. We're not talking about
14 the chemical integrity of our waters. We're
15 talking about the physical, biological and
16 chemical integrity. These water quality models
17 don't lend themselves to restoring a beneficial
18 use. A beneficial use is not just chemical.
19 There could be a physical, biological or toxicity
20 component, which is partially related to chemical
21 constituents, but there are other aspects, as
22 well.

23 We believe having an analysis with
24 clearly stated assumptions is very clear guidance
25 in that we will not accept an analysis that is

1 just high in the sky. There has to be something
2 behind it. There has to be something where we can
3 understand how they came to a conclusion and the
4 public as well. The public is part of the
5 process. L.A. does not include that aspect in
6 their particular paradigm.

7 So, you know -- and you we're not
8 opposed to developing guidance. L.A. didn't have
9 guidance in their permit. They developed guidance
10 after the permit was issued. I think you heard
11 from us and our stakeholders here that we have
12 engaged with our constituents frequently. We
13 communicate with them often. We lend them our
14 expertise on the matter, our regulatory
15 perspective. And once we issue this permit, it's
16 not like we're going to hide in our offices and
17 not engage anymore. We will continue to have
18 these conversations and make sure there's a clear
19 understanding among everyone what our expectations
20 are.

21 So guidance can be forthcoming, and if
22 you would like to see very specific guidance, we
23 can do that. But if we want to give the
24 Copermittees some flexibility in terms of how they
25 want to approach water quality improvement -- if

1 they want to go after hydromodification
2 improvements, make sure those hydromodified
3 channels are restored, you can't do it with a
4 model. If you want to improve or increase the
5 amount of wetland area, you can map it but I don't
6 know how a model is going to get you there.

7 So that brings us to the question of
8 prioritization and I wasn't quite clear how being
9 deemed in compliance during preparation of the
10 pathway would lend itself to prioritizing your
11 water quality concerns. The whole idea of the
12 water quality improvement plan is to prioritize,
13 and the idea of the alternative compliance pathway
14 is to figure out how long is it going to take to
15 get there. You don't have to have the same
16 schedule for every single constituent. It would
17 be staggered schedules for constituents.

18 So I'm not sure if I should touch on
19 the backsliding. I think we already addressed it
20 through our comments.

21 MS. HAGAN: I think the response
22 comments addresses that adequately.

23 MR. CHIU: And then the last thing I
24 want to -- there were three other issues I wanted
25 to cover that I heard that I just wanted -- there

1 seemed to be some muddling of what permit
2 requirements are and how they're being applied to
3 the alternative compliance pathway.

4 First Laguna Beach and Dana Point,
5 they were bringing up that lawsuit that was
6 brought against the City of Laguna Beach. That
7 was a lawsuit specific to dry-weather discharges
8 going into their MS4, which is very different than
9 storm water discharges. The permit has a specific
10 requirement to effectively prohibit
11 non-storm-water discharges into the MS4.

12 Then there is a provision, an effluent
13 limitation. One is a prohibition; one is an
14 effluent limitation. Effluent limitation os
15 discharges from the MS4 shall -- the pollutants
16 shall be reduced to the maximum extent
17 practicable. Those are very different. The
18 alternative compliance pathway doesn't address
19 either one of those. The alternative compliance
20 pathway is for receiving water limitations. The
21 receiving water limitations state discharges from
22 the MS4 shall not cause or contribute to
23 exceedances in the receiving water.

24 So, you know, when I heard, I think it
25 was Mr. Baron, saying the Clean Water Act -- MS4s

1 aren't required to meet numeric effluent
2 limitations, that's true. And we don't have
3 numeric effluent limitations that need to be met.
4 We have a narrative of maximum extent practicable
5 standard. But the receiving water limitation is
6 different than a effluent limitations. The
7 receiving water limitation is a condition in the
8 water that needs to be protected or restored, such
9 that the beneficial use is supported.

10 That's the ultimate end goal that
11 we're trying to achieve. That is a numeric goal
12 that can be proposed as part of the water quality
13 improvement plan but they have the option of
14 proposing effluent limits of some sort that would
15 be self-imposed, and they're not in our permit.
16 We have nothing in our permit that actually
17 requires them to be in compliance with a numeric
18 effluent imitation.

19 I think, again, it was Mr. Baron who
20 said the permit is placing upon the Copermittees
21 the responsibility of -- placing on the
22 Copermittees responsibilities typically taken by
23 the regional Board, such as developing TMDLs or
24 time schedule orders and those types of things. I
25 would agree. I think we have placed a lot of

1 these things in their realm of responsibility if
2 they so choose. And we don't require them to
3 develop these things. This is an optional
4 pathway, but the benefit of it is that they get to
5 develop it. They get to develop the model. They
6 will get to develop the numeric goal. They will
7 get to propose it to us for us to buy into it. If
8 it was all us, it would be us doing the modeling.
9 It would be us going to them and trying to
10 convince them, and, typically, it was not an easy
11 convincing process. Trying to convince them this
12 was the best thing for water quality.

13 This allows them to tell us what is
14 best for water quality, and to avoid TMDLs, which
15 then hand cuffs everybody in the process because
16 then we have things in the basin plan we cannot
17 change easily. This process, it does place a
18 little bit more on the Copermittees, but it's up
19 to them if they want to take on that challenge,
20 and there are a lot of benefits to it. To realize
21 those benefits does take more time and a few more
22 resources.

23 I think that covers, hopefully, all
24 the comments we heard. Last one: The language
25 request for changing -- if the San Diego Water

1 Board finds to where a Copermit. I think we're
2 talking semantics at this time. I don't think
3 it's a necessary change. I will leave that to the
4 Board if they would like to see that change.

5 CHAIRMAN ABARBANEL: Final question?

6 BOARD MEMBER OLSON: I just have one
7 question. It goes back to what you said. So now
8 I'm confused. It's been referred to many times
9 today that the Copermittees are out of compliance.
10 Are they out of compliance or are they in
11 compliance? The receiving waters maybe out of
12 compliance.

13 MR. CHIU: So in every permit, there's
14 a set of discharge prohibitions, receiving water
15 limitations and effluent limitations. Effluent
16 limitations are in there, typically, to achieve
17 your discharge prohibitions. In storm water
18 permits, we have what's called a maximum extent
19 practicable standard. Every permit cycle, the
20 maximum extent practical was supposed to get
21 better and better and get to the point where it
22 actually achieves the receiving water limitations
23 and prohibitions, but we're not there.

24 There is this disconnect in MS4
25 permits, in particular, where the maximum extent

1 practicable standard, where they maybe in
2 compliance with that, does not mean they are in
3 compliance with receiving water limitations. I
4 think the Copermittees are in compliance with the
5 maximum extent practicable standard but they can't
6 say they're in compliance with the receiving water
7 limitations.

8 Any other questions?

9 BOARD MEMBER STRAWN: This one has to
10 do with the questions for extra time. One part of
11 that argument that the Copermittees made that
12 struck a note with me is the desirability of more
13 public input and having hearings, having more
14 reviews, opening it up more for the public.
15 Rather than this, giving them more time blankly,
16 if, hypothetically, one of the groups had
17 diligently had their WQIP all set for some
18 watershed and came to you and said, "We've drafted
19 this document. We think it's right, but we want
20 60 days to have three sets of public hearings over
21 a certain period of time," would our Board be in a
22 position to allow that extra time if they were
23 to -- if it was a specific request like that?

24 MR. CHIU: I don't think that we would
25 be precluded from doing that. Part of the process

1 is when they submit their water quality
2 improvement plan, before we accept it, we have to
3 review it. If there are things they propose to
4 improve, we can certainly give them more time if
5 it means that we wouldn't accept it. Part of the
6 acceptance means implementation. It kind of
7 starts the implementation process, so providing
8 more time is great if you want to --

9 BOARD MEMBER STRAWN I'm just looking
10 at an alternative. If you got a specific need for
11 something you think is going to add value, come
12 talk to us.

13 MR. CHIU: We can still accept
14 something, but give them the ability to obviously
15 improve, if they feel it's necessary.

16 BOARD MEMBER STRAWN: They can always
17 come to us and ask for that too.

18 MR. CHIU: Absolutely. I think this
19 board seems to be very receptive to our community.

20 CHAIRMAN ABARBANEL: Thank you very
21 much. We will close the hearing and open this up
22 to board discussion.

23 MS. HAGAN: Your acting executive
24 officer --

25 MR. SMITH: Thank you, Chair

1 Abarbanel. Jimmy Smith, acting executive officer.
2 I won't recap what Wayne said, but I do want to
3 offer a little perspective. I'll give way my
4 recommendation. I do support staff's
5 recommendation to move forward with the permit as
6 drafted with the errata they proposed. I saw that
7 not lightly. I remind the board this is largely
8 the same permit heard in 2013 and again earlier
9 this year, and I think it's a good sign we've come
10 down to a place with a lot fewer issues. I think
11 it's a sign we are working together with the
12 Copermittees, with the environmental groups, with
13 the USEPA, and some of the other developers that
14 are out there.

15 Staff has navigated a rather
16 conscientious pathway on these issues with public
17 input and input from Copermittees. What they put
18 forth, I think is reasonable as the water code
19 calls us to be. The big issue for them is more
20 time, and time is always something that is a
21 challenge for us as a board and for the public, as
22 well. As you saw the slides, and we all know, we
23 are not achieving fishable and swimable waters in
24 many areas in our region.

25 This pathway to compliance, this

1 alternative compliance pathway, that is a very
2 high bar that staff has set forth, and one that
3 can save the Copermittees time and money and not
4 have to worry about additional TMDLs coming down
5 on them every few years, to allow us as staff to
6 work with them and the public on actual
7 improvements and BMPs that will make water quality
8 better in our region.

9 With the time issue, the term that
10 comes to mind is don't let the perfect be the
11 enemy of the good. Where we are now is an
12 opportunity to be move forward. The permit is not
13 perfect. We sometimes joke that maybe we achieve
14 a good outcome when nobody likes what we're doing.
15 But in this case I don't think that's the case. I
16 think everybody likes where we're headed but
17 they're have issues with how we're headed there.

18 This permit will be back before the
19 Board, and we may be back here again for a lengthy
20 hearing, but in the interim, time will be better
21 spent with staff not reworking the permit but
22 getting out there working with staff to make
23 improvements to water quality. The only way that
24 can happen is if we get this permit adopted.

25 So I reaffirm my recommendation that

1 the Board adopt it as originally put forth.

2 CHAIRMAN ABARBANEL: Okay. I think
3 it's time for board discussion.

4 Tom, I know you have a deadline if
5 you'd like to start here are my thoughts.

6 BOARD MEMBER MORALES: I think
7 everybody here doesn't want much, you just want
8 more, but at some point we need to move on. It's
9 really only two issues that have been talked about
10 when it comes to this permit. The first is the
11 alternative compliance pathway. That seems to be
12 the biggest of the two. And back when we issued
13 our first MS4 in 2013, that applied to the San
14 Diego folks, we had a lot of the same discussion,
15 and then there was a lot of discussion about safe
16 harbor back then. We didn't give it to the San
17 Diego folks. It wasn't because personally I had
18 anything against them. It was quite the opposite.
19 I had great faith they would do what they need to
20 do in a fairly short order, and they have.
21 They've risen to the task.

22 If there is an instance where they'll
23 get a plan, it has to pass (unintelligible). If
24 it doesn't, that's going to be another discussion
25 that we have. So I hope that allays some of the

1 fears that people are going to submit poor plans.
2 I don't expect that will be the norm at all. It
3 seemed to work okay for the San Diego folks. I'm
4 not saying you've got all these great protections
5 and while you're working on this --I think it will
6 work as well the Riverside permittees.

7 And those of you working on these
8 plans, I know you are deep in the throws of
9 working on that, and I know you're working on
10 these things diligently. So I am comfortable with
11 that portion of the tentative order. With respect
12 to the grandfathering, again, that's no surprise.
13 If it were up to me I would say December 24th.
14 It's no secret. We've been talking about this for
15 years. I will support staff in their
16 recommendation to allow another 60 days, maybe 90
17 days from the date of adoption. I will, again,
18 support the order even though my personal
19 preference would be December. But as you all did
20 in your meetings, we'll make an accommodation, and
21 that is pretty much where I come down on this
22 stuff.

23 I'll end by saying when we came up
24 with this whole notion of an outcomes-based MS4,
25 we were trying to get out of the business of

1 micromanaging you all. I think this alternative
2 compliance pathway is very much in keeping with
3 that. You're all grown ups. You know what works
4 best for you. We're giving you that opportunity.

5 I have great faith, and when I am long
6 gone from this board, I hope to be able to look
7 back and say great waters we have in Southern
8 California are in a small part due to mostly in
9 large part to the role you all played.

10 BOARD MEMBER OLSON: I wasn't here in
11 2013, so I find that there's a lot of history on
12 every Board and every position that you take. I'd
13 like to start by commending the staff. I was on
14 the Board in February when we decided we would
15 look at the alternative pathway and try to pursue
16 it. I heard in my meeting, environmentalists
17 express a viewpoint but I have a very long history
18 of looking at water quality. And so if you look
19 back to where I came in at water quality, we saw
20 our rivers were burning and there were massive
21 fish kills, and thanks to the environmental
22 community and organizations like the regional
23 board and the state board, there have been massive
24 improvements. But I also, in working on a number
25 of standards, have seen taking a little more time

1 can sometimes reap benefits for everyone.

2 In this case, I tend to believe that
3 what's been put forward by the staff is probably
4 attainable. We hear this issue of milestones
5 arising from the one group that is working on
6 their water quality improvement plan, and
7 expresses concerns, and so my concern is, if those
8 -- if we now, a year from now or two years from
9 now, see all the agencies with these concerns, how
10 can this board respond?

11 What I really don't want to see in not
12 giving interim compliance is suits that will take
13 money away from the goals and objectives that
14 everyone in this room is trying to obtain. So I
15 was given assurance from the staff that if we see
16 anything coming forward that looks like extensive
17 legal action, there will be action or this will
18 come back to the Board. I just want to ask again,
19 is that feasible within the manner that the Board
20 operates? That's one of the my biggest concerns,
21 to see money go away from our water quality
22 objectives because people are changing the
23 timetable.

24 Is there an answer to that?

25 CHAIRMAN ABARBANEL: I think you're

1 asking Jimmy.

2 JIMMY: Yes, I think we can given the
3 option to reopen the permit at any time should the
4 Board direct us to or should staff make that
5 recommendation, we could come back and change the
6 provisions there to open it back up. 2018 isn't
7 that far away. That would be five years after San
8 Diego was first enrolled, so we would be starting
9 on that in 2017 anyway, and that's a little over a
10 year away.

11 BOARD MEMBER OLSON: One of the things
12 we're trying to get away with is to have people in
13 constant permit in changing and renewals. With
14 reservation, I'm going to support. I would like
15 to see interim compliance given, but I will
16 support the -- the action of the staff in this
17 case, and I would like to thank everyone. I know
18 everyone worked really hard and I really want to
19 stress I appreciate that.

20 BOARD MEMBER ANDERSEN: I'm very happy
21 that bringing Riverside was not that
22 controversial. It's a tribute to the staff, the
23 Copermittees and the stake holders involved in the
24 process here working together and working hard on
25 it. I'm going to agree with Jimmy's

1 recommendation and it's not that I didn't
2 consider, carefully, your input on all those paths
3 to alternative compliance. I agree with the EPAs
4 comment and Jimmy's recommendation that we should
5 commit to and follow-up guidance and that would be
6 a good thing. And my only other comment is on the
7 course sediment yield. That stuff should be dealt
8 with within the BMP manuals. It was great to have
9 the input on it, but I think the Copermittees can
10 probably work that out with everybody. So with
11 that, I'm supporting your recommendation.

12 BOARD MEMBER STRAWN: I'll try to be
13 quick. I want to thank everybody. The staff, the
14 Copermittees, the NGOs. I'm not even going to get
15 into the alternative compliance. It seems to me
16 the Copermittees are all good people, just leave
17 them alone, let them do their job. The
18 environmental groups are we don't need to keep
19 threatening to sue them I don't think anybody here
20 would believe that's true. That's certainly what
21 it sounds like when you get the bickering that
22 went on here today. I want to address one comment
23 and I know it's not even really part of this
24 because it's going to be in the BMP manuals but
25 the comment that we're trying to make somebody's

1 private property worthless is offensive to me. We
2 don't want to zero out anybody's property. We
3 also don't want what you do on your property to
4 effect the property below you or somebody above
5 you to do something that affects your property.
6 Are when you're dealing with water quality, you're
7 dealing with everybody in the watershed.

8 Everybody wants to say "my private
9 property." It affects everybody up and down and
10 we have to look at it from that big picture. I'm
11 sure the Copermittees, when you get into the
12 detail of the BMP manual, can work out something
13 that, in effect, takes care of the all of the
14 property owners and all the public in each given
15 watershed. With that, I'm done talking and I will
16 go along with Mr. Smiths recommendation.

17 CHAIRMAN ABARBANEL: I come from the
18 only city in California that instead of a general
19 plan, the community is taken into account on all
20 decisions, and I see that Gary Strawn is our
21 honorary member.

22 I was convinced by Mr. Gonzales that
23 prior lawful approval issue is a trivial one. I
24 see no reason to approve it. That isn't what it
25 sounds like is the consensus of my colleagues, and

1 that's okay. I have, as indicated in one of my
2 questions, I have a moral problem with the
3 alternative compliance pathway announcing as a
4 public agency that somebody is in compliance when
5 we know and they agree they are not. I think it
6 cuts into the moral stature of an agency that is
7 supposed to speak truth.

8 Do I think those things will make
9 major impediments in the achievement of water
10 quality improvement? I actually don't, but they
11 trouble me. I think what we really heard was the
12 idea the adoption of the methodology of water
13 quality improvement plans is a way to have the
14 Copermittees who join us in a goal tell us how
15 they want to achieve the goal. I thought that was
16 a great idea in 2013. Two and a half years later,
17 it may even be a greater idea. The city of San
18 Diego has done extremely well. Sounds like the
19 County of Orange is well on its way. Laguna Beach
20 and Dana Point and Laguna Niguel, all slightly
21 differently and that's fine. That's what we
22 wanted. The fact it puts more responsibilities on
23 the Copermittees is absolutely one of the goals.
24 So I will -- having said that, I will call for
25 motion. And I will see where I am. Is there a

1 motion?

2 BOARD MEMBER MORALES: I will move to
3 adopt Tentative Order No. R9-20150-0100 with the
4 proposed errata.

5 CHAIRMAN ABARBANEL: Is there a
6 second?

7 BOARD MEMBER ANDERSEN: I'll second.

8 CHAIRMAN ABARBANEL: Is there further
9 discussion?

10 Then I will say that I'm going to vote
11 against it, not because I don't want to include
12 Riverside County Copermittees as part of the
13 overall project, but for the reasons I mentioned.
14 I find them troubling because of that one
15 triviality Mr. Gonzalez has explained, that it's
16 very easy to get a lawful approval by doing what
17 the law says.

18 I'll call for a vote -- I'm sorry. I
19 can't call for that. I'll call for a roll call
20 vote.

21 MS. HAGAN: Ms. Olson?

22 BOARD MEMBER OLSON: Aye.

23 MS. HAGAN: Mr. Andersen?

24 BOARD MEMBER ANDERSEN: Aye.

25 MS. HAGAN: Mr. Strawn?

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BOARD MEMBER STRAWN: Aye.

MS. HAGAN: Chair Abarbanel?

CHAIRMAN ABARBANEL: No.

So let me point out that actually saves us having to send our executive officer, in the next six months, off to Sacramento to explain to the State Board why we hummed our nose at them because we didn't. There's no more business before us. We are adjourned.

(Proceedings concluded at 4:39 p.m.)

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: _____

KASEY L. MOBLEY
CSR NO. 13407

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

May 14, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No. CAS0108740)

Dear Mr. Smith:

Following below are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (NPDES permit No. CAS0108740).

EPA appreciates the efforts made by Regional Board staff to respond to our comments of January 2008 on the previous draft permit. Our comments on the latest draft mainly concern one aspect of the permit, namely the Low Impact Development (LID) requirements. Regarding LID, we still believe the permit needs certain improvements to ensure it contains clear, measurable, and enforceable requirements in this area.

With regards to other issues, we believe a number of clarifications are needed regarding the applicability of TMDLs to the permit. And in response to your request, we are providing comments on two other issues which are the removal of the term "urban runoff" and the use of numeric effluent limits for non-stormwater discharges.

A. Implementation of LID Requirements

First of all, we understand that the Orange County permittees desire consistency between the LID requirements adopted by the Santa Ana and San Diego Regional Boards. As noted in our letter to the Santa Ana Regional Board dated May 8, 2009 (which we provided to you earlier), with a few relatively minor clarifications, we would be comfortable with the requirements of the Santa Ana Regional Board's permit for North Orange County (May 1, 2009 version). As discussed below, however, we have certain concerns with the LID requirements of the March 13, 2009 draft permit proposed by the San Diego Regional Board as well as the tentative update of April 29, 2009. If the adopted Santa Ana Regional Board North Orange County permit satisfactorily addresses EPA's May 8 comments, we would support direct incorporation of the North Orange

County permit's LID provisions into your South Orange County permit. We will continue to consult with you regarding the status of the North Orange County permit.

1) Concerns with the South Orange County draft permit of March 13, 2009

Our concerns with the South Orange County draft permit of March 13, 2009 include the following:

a) We believe the draft permit should be revised to more clearly incorporate numeric criteria for LID implementation. This has been a priority of ours in our review of draft MS4 permits across the State including the recently-reissued permit for Ventura County and for the North Orange County permit.

In the South Orange County permit, numeric LID criteria should be included in section F.1.d.4 of the permit, entitled "Low Impact Development Site Design BMP Requirements." This section of the draft permit describes LID BMPs, but does not include numeric performance criteria. We recognize that in a subsequent section of the permit, section F.1.h which addresses hydromodification, there is a section entitled "Interim Requirements for Large Projects" (section F.1.h.6) which calls for the reduction of Effective Impervious Area (EIA) to less than 5%. While we support including an interim hydromodification requirement, to avoid confusion over the permit's expectations for LID, we believe the permit would be improved by including numeric criteria in the LID section F.1.d.4.

An example of this recommended approach is the permit adopted by the Los Angeles Regional Board for Ventura County on May 7, 2009. This permit includes numeric criteria in the LID sections of the permits, and also contains appropriate, separate criteria for hydromodification.

b) We would also point out that the South Orange County permit lacks storm sizing criteria to use in conjunction with the EIA requirement. The absence of such criteria resulted in criticism of an early version of the draft Ventura County permit.

Additionally, we would note that the latest draft North Orange County permit no longer contains the 5% EIA requirement, but instead establishes numeric LID performance criteria in terms of a design storm volume. We are supportive of both the design storm volume approach proposed by the Santa Ana Regional Board and the 5% EIA approach used by the Los Angeles Regional Board for the Ventura County permit.

c) We believe the South Orange County permit should include specific requirements for alternative programs when permittees conclude that implementation of LID is infeasible. However, the existing provisions in the permit related to waivers (sections F.1.d.7 and F.1.d.8) do not address this concern. Section F.1.d.7 is entitled "Waiver Provision for Numeric Sizing of Treatment Control BMP Requirements" and provides waivers for treatment requirements rather than LID. Further, section F.1.d.8, entitled "LID Site Design BMP Substitution Program" is written to substitute for "some

or all treatment control BMPs." Our concern is with the draft permit's LID section (section F.1.d.4.a.i) which refers to a "finding of infeasibility" that permittees may make if LID implementation is not practical for a given project; additional clarification is needed concerning the circumstances when LID would be considered "infeasible."

2) Concerns with the tentative revisions to the South Orange County permit of April 29, 2009

Our concerns with the tentative revisions to the South Orange County permit of April 29, 2009 include the following:

a) New language would be added in section F.1.d.(4)(a)(i) which would require LID practices or participation in the LID substitution program of F.1.d.(8)(d). However, the permit still does not clarify the circumstances when LID would be considered infeasible (see comment 1.c above) or require the permittees to develop such criteria for submittal to and approval by the Regional Board (as does the current draft of the Santa Ana Regional Board's permit). Further, the revised section F.1.d.(8)(d) seems misplaced (and is confusing) in that it is located within section F.1.d.(8) which sets forth an optional program to substitute LID for treatment controls.

b) A new section F.1.d.(4)(c) would be added to the permit which would require capture of a design storm. However, the permit also provides a rather open-ended list of acceptable LID BMPs. We would recommend that acceptable LID measures be limited as suggested in the first comment in our May 8 letter to the Santa Ana Regional Board on the proposed North Orange County permit, in which LID is defined in terms of the way the BMP performs. The concern in our May 8 letter is that certain BMPs (even biofiltration which is listed in the North Orange County permit) may not necessarily perform consistent with LID principles, unless additional operational requirements are specified. Such concerns would also apply to certain BMPs on the list in your permit such as detention ponds and constructed wetlands.

B. Total Maximum Daily Loads (TMDLs)

We believe that additional clarification is needed concerning the consistency of the draft permit with approved TMDLs. Finding E.12 for the permit indicates the permit includes applicable wasteload allocations (WLAs) that have been adopted by the Regional Board and approved by the State Board, Office of Administration Law and EPA. However, we are not aware of any such WLAs for the MS4s subject to the permit. Table 1 in the fact sheet for the permit notes that certain TMDLs have been adopted by the Regional Board, but have not yet been approved by EPA. There is also a reference in the fact sheet to dry weather TMDLs included in section C of the draft permit, which apparently have received all the necessary approvals. Again, however, we are not aware of these TMDLs and the fact sheet should provide full and clear information concerning the approval status of TMDLs with WLAs applicable to the MS4s.

Even if no applicable WLAs have been approved by EPA, it is helpful for the fact sheet to clarify this matter. Further, if applicable WLAs are approved by EPA prior to Regional Board adoption of the permit, they should be included in the permit. We are also pleased by the apparent intent of the Regional Board as indicated in Finding E.12 and Section I of the draft permit to express permit effluent limits, when necessary to ensure consistency with applicable WLAs, as numeric effluent limits. Numeric limits provide greater assurance of consistency with WLAs than the alternative of BMPs which are sometimes used, given the uncertainty in the performance of many of the BMPs commonly used for stormwater pollution control.

C. Removal of the Term "Urban Runoff"

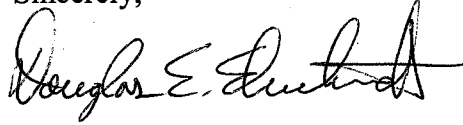
You had asked for our views on the proposed replacement of the term "urban runoff", which was commonly used in the previous permit, with the terms "stormwater" and "non-stormwater" as the discharges regulated in the new permit. We would support this revision since it is actually more consistent with the terminology used in the EPA stormwater regulations at 40 CFR 122.26. However, we would point out that the new Finding C.14 and the discussion in the fact sheet incorrectly indicate that industrial stormwater discharges are subject to the maximum extent practicable (MEP) discharge standard in the Clean Water Act (CWA). Section 402(p)(3)(B) of the CWA provides that only municipal stormwater discharges are subject to the MEP standard; section 402(p)(3)(A) provides that industrial runoff is subject to all applicable requirements of sections 402(p) of the CWA, and section 301 of the CWA which includes BAT/BCT effluent limits and water quality standards compliance.

D. Numeric Effluent Limits for Non-Stormwater Discharges

You also asked for our views on whether numeric effluent limits would be appropriate for non-stormwater discharges. As noted above in our comments on LID and TMDLs, we are seeking to ensure that permits include clear, measurable and enforceable requirements. We believe that the use of numeric effluent limits for non-stormwater discharges would be a significant step in the right direction and we support the proposed limits. In previous MS4 permits, the non-stormwater discharges addressed in the permits have typically been regulated through best management practices (BMPs) pursuant to 40 CFR 122.44(k) for the same reason that stormwater discharges themselves are often regulated by BMPs, which is the lack of good information about the discharges and the difficulty in deriving appropriate numeric effluent limits. This issue was recognized in a 1996 EPA guidance on water quality-based effluent limits for stormwater discharges which is cited by the fact sheet. However, the guidance also indicates that as additional information becomes available, more specific limits should be considered. As noted in the fact sheet, additional information has become available to the Board about the discharges over the years, and we agree that the numeric effluent limits are now appropriate.

We appreciate the opportunity to provide input on this draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Eberhardt". The signature is fluid and cursive, with a long horizontal stroke at the end.

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

20



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

June 18, 2009

Mr. Ben Neill
Northern Watershed Protection Unit
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County

Dear Mr. Neill:

The following are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4), as amended by the "Draft Updates to LID Language" dated June 8, 2009. EPA most recently commented on the March 13 draft permit in a letter to James Smith dated May 14, 2009. These comments are intended to supplement our May 14 comments.

First, we would like to express our support for one aspect of the March 13, 2009 Tentative Draft Permit which was not covered by our May 14 letter. We recognize that section B, regarding Non-Stormwater Discharges removes "landscape irrigation, irrigation water, and lawn watering" from the listed categories of non-prohibited non-stormwater discharges. We note that the draft Fact Sheet identifies discharges from these categories to be substantial sources of pollutants. We agree that it is valid for the Regional Board to remove these sources from the list of non-prohibited non-stormwater discharges.

We are encouraged by the revisions made to the draft permit's Low Impact Development (LID) provisions in the June 8 update. We have been supportive of the Santa Ana Regional Board's Orange County MS4 permit, which was adopted on May 24, 2009. The LID provisions included in the June 8 update are generally consistent with the Santa Ana Regional Board's permit. We also appreciate that the June 8 update addresses the comments pertaining to LID in our May 14 letter.

We have the following specific comments on the June 8 update.

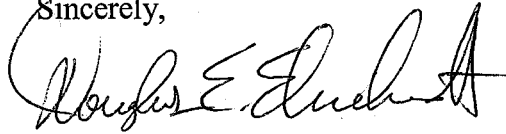
Section F.1.d requires the submittal of an updated model SUSMP within two years of permit adoption. We note that in other permits, including the May 24, 2009 Santa Ana Regional Board permit for Orange County, similar plans must be submitted within one year of permit issuance.

Section F.1.d.4.c.ii – The updated LID language includes the term “biofiltration.” Although this term is commonly used, as a general matter, its exact meaning is unclear. For example, in some circumstances, distinctions have not been made between infiltration and biofiltration. Conceptually, we believe that a well designed and operated biofiltration system can be consistent with LID principles by reducing flow volumes and protecting water quality. However, without a clear definition of biofiltration, there is the potential for the use of approaches that are contrary to LID. This section of the draft permit takes a step in the right direction by providing a total volume requirement for an acceptable biofilter. We would be interested in conferring further with you to improve the permit’s definition of biofiltration.

Lastly, we’d like to refer to our May 14 comment letter’s mention of the permit’s provisions regarding the incorporation of Total Maximum Daily Loads (TMDLs). We continue to believe that the draft permit’s TMDL provisions should be clarified, and would be glad to consult with you on this issue.

Thank you for the productive work you’ve done to improve this permit. If you’d like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Eberhardt". The signature is fluid and cursive, with a large initial "D" and "E".

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

FAX TRANSMITTAL

Date:	9/28	# of Pages (including cover sheet):	5
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TO:	James Smith
Dept./Agency:	San Diego RR
Fax Number:	858-571-6272
Verification Number:	

FROM:	Eugene Bumbly
Mail Code:	WTR-5
Phone Number: (415)	972-3510
Fax Number: (415)	

NOTE:

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R.J. Stewart Time: 449



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 28, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No.
CAS0108740)

Dear Mr. Smith:

The following are EPA Region 9's comments on the August 12, 2009 draft permit for discharges from the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (SDRB) (NPDES permit No. CAS0108740).

Region 9 submitted comments on the previous draft permit of March 2009 in letters to the SDRB dated May 14, 2009 and June 18, 2009. We believe significant progress has been made in the August 2009 draft permit in addressing our comments on the previous draft. Region 9 supports adoption of the latest draft permit, with a few relatively minor revisions and clarifications as described below.

A. Low Impact Development (LID) Requirements

As we pointed out in our previous letters, Region 9 is seeking clear, measurable, and enforceable LID requirements in MS4 permits. The LID requirements of the latest draft are quite similar to the requirements in the North Orange County MS4 permit adopted in May 2009, with Region 9's support, by the Santa Ana Regional Board (SARB). We believe the SDRB's draft permit would be consistent with our objectives for LID implementation with a few minor revisions discussed below:

1) Page 8 (Finding D.2.c) – We recommend either removing the word “filtration” or replacing it with “retention.” This would be consistent with the draft permit's Part F.1.d.(4)(d) which requires LID BMPs to be sized and designed to ensure onsite retention of the design storm event. We believe this would also better mirror the intent of mimicking natural hydrology via infiltration, harvesting and reuse, or evapotranspiration of stormwater, as opposed to the use of filtration systems which result in stormwater flows into the MS4 via underdrains.

- 2 -

2) Page 31 (Part F.1.c.8) – The inclusion of “LID biofiltration” in this section pertaining to large development projects is inconsistent with both section F.1.d.(4)(d) of the draft permit (described above) and with the SARB MS4 permit for Orange County (Part XII.C.2), where “bio-treatment” is only considered to meet that permit’s LID provisions if infiltration, harvesting and reuse, or evapotranspiration are not feasible. This section should be revised to clarify that retention BMPs are preferred, and that the use of biofiltration will comply with this provision only if retention BMPs are not feasible.

3) Page 31 (Part F.1.c.8) - At the first mention of the feasibility of onsite retention or “LID biofiltration” there should be a reference to the requirement that feasibility criteria will be proposed by the co-permittees and approved by the Executive Officer (EO). Based on the mention of a “technical feasibility analysis” in section F.1.d.7., it’s our understanding that it’s the intent of the permit that this analysis must be submitted for the approval of the EO as part of the standard stormwater mitigation plans (SSMPs), and will be subject to public review and comment. The permit should be clarified to explicitly state the expectations for the timing of the submittal of this analysis and the review and approval process. These expectations should be included initially in this section, which is the first instance in the permit where this analysis would apply.

4) Page 34 (Part F.1.d.4.(a)(iv)) – We recommend deletion of the words “filter” and “detain” since they are not consistent with the intent of onsite retention as noted above.

5) Page 36 (Part F.1.d.4.(d)(ii)) - Given the mention of technical infeasibility in this section, it should be noted here that the conclusions on feasibility will be made based on the approved feasibility analysis.

6) Page 36 (Part F.1.d.4.(d)(iii)) – We recommend the word “may” be changed to “must” to ensure conventional treatment is required when LID is determined to be infeasible.

7) Page 39 (Part F.1.d.7) – As noted above, mention of the technical feasibility analysis should clarify expectations for the submittal of this analysis along with the fact that there will be an opportunity for public review and comments, and ultimate approval by the EO.

B. Total Maximum Daily Loads (TMDLs)

As you know, the Baby Beach TMDL has not yet been approved by the State Office of Administrative Law (OAL) or EPA. Accordingly, Finding E.11 is not currently accurate in stating that the permit includes wasteload allocations (WLAs) from fully approved TMDLs. However, we anticipate the Baby Beach TMDL will be approved by OAL and EPA prior to permit adoption, and we suggest you proceed under this assumption.

We also suggest the following clarifications and revisions related to the proposed TMDL requirements of the permit:

- 3 -

- 1) Page 79 (Part I) – The reference to Finding E.12 appears to be an error, and should be corrected.
- 2) Page 79 (Part I.1.a) - Although Finding E.11 identifies the particular co-permittees which are affected by the TMDL requirements, it would be helpful for additional clarification to include the names of these co-permittees in Part I.1.a of the permit as well.
- 3) Page 79 (Part I.1.b) - The permit should contain clear expectations for monitoring to ensure achievement of TMDL WLAs. Given that the referenced TMDL does not include a clear monitoring plan, the permit should require submittal of a monitoring plan, and specify the date by which this plan must be submitted.
- 4) Page 79 (Part I.1.c) - Since the date for compliance with the dry weather WLA is five years after permit adoption, it appears erroneous to require both the wet weather and dry weather WLAs to be met by 2019, ten years after permit adoption. It should be noted that dry weather WLAs must be met by the end of 2014.

C. *Numeric Effluent Limits for Non-Stormwater Discharges*

In our previous letter of May 14, 2009, we supported the inclusion of numeric effluent limits for non-stormwater discharges, and we continue to do so. Establishing these limits is consistent with section 402(p)(3)(B)(ii) of the Clean Water Act, which states that permits for municipal stormwater must effectively prohibit non-stormwater discharges into the storm sewers.

- 1) Page 22 (Part C.4) - We recommend clarification regarding the “representative percentage” of the major outfalls/stations which will be monitored. The permit should provide expectations for the magnitude of required monitoring pursuant to this section.
- 2) Page 23 (Table 4.a.2) – It appears that the numeric values in the columns for the saltwater AMELs and MDELs should be reversed, i.e., the MDELs should be the larger numbers.

D. *Stormwater Action Levels*

We fully support the inclusion of stormwater action levels (SALs) in the permit. These requirements help to clarify MEP. We recommend the fact sheet include additional information describing how the particular values for the SALs were derived.

- 1) Page 25 (Part D.2.) - Again, the permit requires sampling of a “representative percent of the outfalls.” Both here and in Part C.4, the permit should provide some degree of specificity so that the permittees and the public have an idea of the expectations for the number of outfalls to be monitored.

E. *Retrofitting Existing Development*

- 4 -

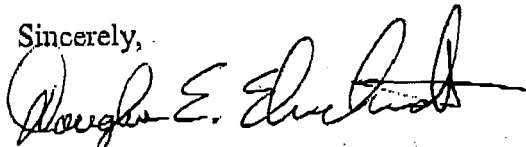
We fully support the proposed requirements in the permit for retrofitting existing development with additional controls such as LID. The benefits of adding LID measures in particular in new developments have been documented in numerous reports of which the Board is well aware. Such benefits would also accrue from adding LID to existing developments. In addition to the support provided by the fact sheet, we would note that such requirements are encouraged by the State's 2005 report entitled "NPDES Stormwater Cost Survey" which also investigated alternative approaches to stormwater control.

F. Hydromodification

We are pleased to see the draft permit continues to include requirements related to hydromodification, and that clear, measurable requirements are included to address the issue. We believe the requirements are fully supported in the fact sheet and are consistent with the requirements of other recent MS4 permits in California.

We appreciate the opportunity to provide input on the draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,



Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT

22

STATE OF CALIFORNIA

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**ORDER NO. 01-182
NPDES PERMIT NO. CAS004001
WASTE DISCHARGE REQUIREMENTS
FOR**

**MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE
COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES THEREIN,
EXCEPT THE CITY OF LONG BEACH**

December 13, 2001

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The California Regional Water Quality Control Board, Los Angeles Region (hereinafter referred to as the Regional Board) finds:

A. Existing Permit

The Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the Los Angeles County Flood Control District (see Attachment A, List of Permittees), hereinafter referred to separately as Permittees and jointly as the Discharger, discharge or contribute to discharges of storm water and urban runoff from municipal separate storm sewer systems (MS4s), also called storm drain systems. The discharges flow to water courses within the Los Angeles County Flood Control District and into receiving waters of the Los Angeles Region. These discharges are covered under countywide waste discharge requirements contained in Order No. 96-054 adopted by this Regional Board on July 15, 1996, which replaced Order No. 90-079 adopted by this Regional Board on June 18, 1990. Order No. 96-054 also serves as a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of municipal storm water.

B. Nature of Discharges and Sources of Pollutant

1. Storm water discharges consist of surface runoff generated from various land uses in all the hydrologic drainage basins that discharge into water bodies of the State. The quality of these discharges varies considerably and is affected by the hydrology, geology, land use, season, and sequence and duration of hydrologic events. The primary constituents of concern currently identified by the Los Angeles County Flood Control District Integrated Receiving Water Impacts Report (1994-2000) are cyanide, indicator bacteria, total dissolved solids, turbidity, total suspended solids, nutrients, total aluminum, dissolved cadmium, copper, lead, total mercury, nickel, zinc, bis(2-ethylhexyl)phthalate, polycyclic aromatic hydrocarbons (PAHs), diazinon, and chlorpyrifos.
2. Certain pollutants present in storm water and/or urban runoff may be derived from extraneous sources that Permittees have no or limited jurisdiction over. Examples of such pollutants and their respective sources are: PAHs which are products of internal combustion engine

operation, nitrates, bis (2-ethylhexyl) phthalate and mercury from atmospheric deposition, lead from fuels, copper from brake pad wear, zinc from tire wear, dioxins as products of combustion, and natural-occurring minerals from local geology. However, the implementation of the measures set forth in this Order is intended to reduce the entry of these pollutants into storm water and their discharge to receiving waters.

3. Water quality assessments conducted by the Regional Board identified impairment, or threatened impairment, of beneficial uses of water bodies in the Los Angeles Region. The causes of impairments include pollutants of concern identified in municipal storm water discharges by the County of Los Angeles in the Integrated Receiving Water Impacts Report (1994-2000). Pollutants in storm water can have damaging effects on both human health and aquatic ecosystems.
4. The Los Angeles County Grand Jury, September 2000, completed an investigation into the health risks of swimming near beaches in Los Angeles County and made several recommendations to reduce public health risks (Final Report, Grand Jury, Los Angeles County, 1999-2000). The Grand Jury recommended that the Regional Board consider among other actions, (i) a focus on setting contaminant limits rather than programmatic evaluations, (ii) audit of MS4 Permittee programs; and (iii) clarifying enforcement responsibilities between the State and local governments.
5. Studies and research conducted by other Regional agencies, academic institutions, and universities have also identified storm water and urban runoff as significant sources of pollutants to surface waters in Southern California. See, e.g., [*Surface Runoff to the Southern California Bight*, Southern California Coastal Water Research Project, (1992); *Impacts of Urban Runoff on Santa Monica Bay and Surrounding Ocean Waters* (Gersberg, R.M., 1995); *State of the Bay 1998*, Santa Monica Bay Restoration Project; *Storm Water Impact*, In, Southern California Environmental Report Card 1999, Institute of the Environment, University of California, Los Angeles (Stenstrom, M.S., 1999); *Distribution of Anthropogenic and Natural Debris on the Mainland Shelf of Southern California Bight*, Shelly L. Moore and M. James Allen (1999); *The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff*, Haile, R.W. et al. (1999); *Huntington Beach Closure Investigation: Technical Review* (University of Southern California, 2000); *A Regional Survey of the Microbiological Water Quality Along the Shoreline of the Southern California Bight*, Rachel T. Noble et al. (2001); *Integrated Receiving Water Impacts Report (1994-2000)*, County of Los Angeles (2001)].
6. Development and urbanization increase pollutant load, volume, and discharge velocity. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing an effective natural purification process. In contrast, pavement and concrete can neither absorb water nor remove pollutants, and thus the natural purification characteristics are

lost. Second, urban development creates new pollution sources as the increased density of human population brings proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage waste, pesticides, household hazardous wastes, pet wastes, trash, and other anthropogenic pollutants. Development and urbanization especially threaten environmentally sensitive areas. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may in a particular sensitive environment become significant. These environmentally sensitive areas designated by the State and/or the County of Los Angeles include Areas of Special Biological Significance (ASBS), water bodies designated as supporting a RARE beneficial use, Significant Natural Areas (SNAs), and Significant Ecological Areas (SEAs).

7. The increased volume, increased velocity, and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion and impair stream habitat in natural drainages. Studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving waters. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as 10 percent conversion from natural to impervious surfaces. Percentage impervious cover is a reliable indicator and predictor of potential water quality degradation expected from new development. (*Impervious Cover as An Urban Stream Indicator and a Watershed Management Tool*, Schueler, T. and R. Claytor, In, *Effects of Water Development and Management on Aquatic Ecosystems* (1995), ASCE, New York; Leopold, L. B., (1973), *River Channel Change with Time: An Example*, Geological Society of America Bulletin, v. 84, p. 1845-1860; Hammer, T. R., (1972), *Stream Channel Enlargement Due to Urbanization: Water Resources Research*, v. 8, p. 1530-1540; Booth, D. B., (1991), *Urbanization and the Natural Drainage System--Impacts, Solutions and Prognoses: The Northwest Environmental Journal*, v. 7, p. 93-118; Klein, R. D., (1979), *Urbanization and Stream Quality Impairment*. *Water Resources Bulletin*, v. 15, p. 948-963; May, C. W., Horner, R. R., Karr, J. R., Mar, B. W., and Welch, E. B., (1997), *Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Watershed Protection Techniques*, v. 2, p. 483-494; Morisawa, M. and LaFlure, E. *Hydraulic Geometry, Stream Equilibrium and Urbanization* In Rhodes, D. P. and Williams, G. P. *Adjustments to the Fluvial System* p.333-350. (1979); Dubuque, Iowa, Kendall/Hunt. Tenth Annual Geomorphology Symposia Series; and *The Importance of Imperviousness: Watershed Protection Techniques*, 1(3), Schueler, T. (1994).)
8. The County of Los Angeles has identified as the seven highest priority industrial and commercial critical source types, (i) wholesale trade (scrap recycling, auto dismantling); (ii) automotive repair/parking; (iii) fabricated metal products; (iv) motor freight; (v) chemical and allied products; (vi) automotive dealers/gas stations; (vii) primary metal products (*Critical*

Source Selection and Monitoring Report, Los Angeles County Department of Public Works -Sept 1996). Monitoring conducted by Los Angeles County and the Regional Board demonstrates that the priority industrial sectors and auto repair facilities (one of the commercial sectors) on the list, contribute significant concentrations of heavy metals to storm water (*Los Angeles County 1999-2000 Storm Water Monitoring Report*, Los Angeles County Department of Public Works -July 2000; *Compliance Assessment of the Auto Dismantling Industry; Evaluation of the California General Industrial Storm Water Permit*, H. Chang, (2001), 70 pp., California Regional Water Quality Control Board, Los Angeles Region).

9. The discharge of washwaters and contaminated storm water from industries and businesses specified in this Order for inspection by Permittees is an environmental threat and can also adversely impact public health and safety. For example, a review of industrial waste/pretreatment records performed in 1995 in the County of Los Angeles on illicit discharges indicates that automotive service facilities and food service facilities sometimes discharge polluted washwaters to the MS4. The pollutants of concern in such washwaters include food waste, oil and grease, and toxic chemicals. Other storm water/industrial waste programs in California have reported similar observations. Illicit discharges from automotive service facilities and food service facilities have been identified elsewhere as a major cause of widespread contamination and water quality problems (Washtenaw County Statutory Drainage Board - 1987 Huron River Pollution Abatement Program).
10. Studies indicate that facilities with paved surfaces subject to frequent motor vehicular traffic (such as parking lots and fast food restaurants), or facilities that perform vehicle repair, maintenance, or fueling (automotive service facilities) are potential sources of pollutants of concern in storm water. [References: Pitt *et al.*, *Urban Storm Water Toxic Pollutants: Assessment, Sources, and Treatability*, Water Environment Res., 67, 260 (1995); *Results of Retail Gas Outlet and Commercial Parking Lot Storm Water Runoff Study*, Western States Petroleum Association and American Petroleum Institute, (1994); *Action Plan Demonstration Project, Demonstration of Gasoline Fueling Station Best Management Practices*, Final Report, County of Sacramento (1993); *Source Characterization*, R. Pitt, In *Innovative Urban Wet-Weather Flow Management Systems* (2000) Technomic Press, Field, R *et al.* editors; *Characteristics of Parking Lot Runoff Produced by Simulated Rainfall*, L.L. Tiefenthaler *et al.* Technical Report 343, Southern California Coastal Water Research Project (2001).]
11. Retail Gasoline Outlets (RGOs) are points of convergence for vehicular traffic and are similar to parking lots and urban roads. Studies indicate that storm water discharges from RGOs have high concentrations of hydrocarbons and heavy metals. [*The Quality of Trapped Sediments and Poor Water within Oil Grit Separators in Suburban MD*, Schueler T. and Shepp D. (1992), and *Concentrations of Selected Constituents in Runoff from Impervious Surfaces in Four Urban Catchments of Different*

Landuse, Ranabal, F.I., and T.J. Gizzard (1995), In Proceedings of the Fourth Biennial Stormwater Research Conference, Florida, pp-42-52]. Pilot studies indicate that treatment control best management practices installed at retail gasoline stations are effective in removing pollutants, reasonable in capital cost, easy to operate, and do not present safety risks [Rouge River National Wet Weather Demonstration Project, Task Product Memorandum – Evaluation of On-line Media Filters RPO-NPS-TPM59.00, Wayne County, MI, March 1999]. The Regional Board and the San Diego Regional Board have jointly prepared a Technical Report on the applicability of new development BMP design criteria for retail gasoline outlets, (Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts, (June 2001)). Retail Gasoline Outlets in Western U.S. States (such as Washington and Oregon) are already subject to numerical BMP design criteria, as well in other U.S. States.

C. Permit Background

1. The essential components of the Storm Water Management Program, as established by federal regulations [40 CFR 122.26(d)] are: (i) Adequate Legal Authority, (ii) Fiscal Resources, (iii) Storm Water Quality Management Program (SQMP) - (Public Information and Participation Program, Industrial/Commercial Facilities Program, Development Planning Program, Development Construction Program, Public Agency Activities Program, Illicit Connection and Illicit Discharges Elimination Program), and (iv) Monitoring and Reporting Program.
2. The Permittees have filed a Report of Waste Discharge (ROWD), dated February 1, 2001, and applied for renewal of their waste discharge requirements that serves as an NPDES permit to discharge wastes to surface waters. The ROWD includes a proposed SQMP and a Monitoring Program. The proposed SQMP contains programs previously approved under Board Order No. 96-054 in the following areas:

Public Information and Participation
Development Planning
Development Construction
Public Agency Activities
Illicit Connection/Illicit Discharge Elimination Program

These programs are revised pursuant to the provisions of this Order after adoption.

3. The County of Los Angeles has previously conducted source identification and pollutant characterization consistent with 40 CFR 122.26(d)(1)(ii) and (iii) under its storm water Monitoring Program. The Monitoring Program submitted with the ROWD proposes to advance the assessment of receiving water impacts, identification of sources of pollution, evaluation of Best Management Practices (BMPs), and measurement of long term trends in mass emissions.

4. The Regional Board has reviewed the ROWD and has determined it to be complete under the reapplication policy of MS4s issued by the U.S. Environmental Protection Agency (USEPA) (61 *Fed. Reg.* 41697). The Regional Board finds that the Permittees' proposed SQMP, incorporating the additional and/or revised provisions contained in this Order would meet the minimum requirements of federal regulations.
5. The City of Los Angeles has conducted shoreline and nearshore water quality monitoring off the Santa Monica Bay since the 1950s under the monitoring program for the Hyperion Waste Water Treatment Plant (NPDES No. CA0109991). The monitoring results indicate that effluent from Hyperion's 5-Mile Outfall does not impinge the shoreline, and that elevated bacterial counts are associated with runoff from storm drains and discharges from piers. In 1994, the Regional Board approved the relocation of Hyperion's shoreline stations to implement a bay-wide, regional shoreline-monitoring program associated with storm drain outfalls in the Santa Monica Bay. The City of Los Angeles requested that the shoreline-monitoring requirement be incorporated in this Order. The shoreline pathogen monitoring requirements are outlined in the Monitoring Program for this Order.

D. Permit Coverage

1. The requirements in this Order cover all areas within the boundaries of the Permittee municipalities (see Attachment A) over which they have regulatory jurisdiction as well as unincorporated areas in Los Angeles County within the jurisdiction of the Regional Board. The Permittees serve a population of about 9.5 million [Reference: *2000 Census of Population and Housing*, Bureau of the Census, U.S. Department of Commerce (2001)] in an area of approximately 3,100 square miles.
2. Federal, state, regional or local entities within the Permittees' boundaries or in jurisdictions outside the Los Angeles County Flood Control District, and not currently named in this Order, may operate storm drain facilities and/or discharge storm water to storm drains and watercourses covered by this Order. The Permittees may lack legal jurisdiction over these entities under state and federal constitutions. The Regional Board will coordinate with these entities to implement programs that are consistent with the requirements of this Order. The Regional Board will consider such facilities for coverage in 2003 under its NPDES permitting scheme pursuant to USEPA Phase II storm water regulations.
3. Sources of discharges into receiving waters in the County of Los Angeles but in jurisdictions outside its boundary include the following:

About 34 square miles of unincorporated area in Ventura County, which drain into Malibu Creek and then to Santa Monica Bay,

About 9 square miles of the City of Thousand Oaks, which also drain into Malibu Creek and then to Santa Monica Bay, and

About 86 square miles of area in Orange County, which drain into Coyote Creek and then into the San Gabriel River.

The Regional Board will ensure that storm water management programs for the areas in Ventura County and the City of Thousand Oaks that drain into Santa Monica Bay are consistent with the requirements of this Order. The Regional Board will coordinate with the Santa Ana Regional Board so that storm water management programs for the areas in Orange County that drain into Coyote Creek are consistent with the requirements of this Order.

4. This permit is intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the Maximum Extent Practicable (MEP) from the permitted areas in the County of Los Angeles to the waters of the U.S. subject to the Permittees' jurisdiction.
5. Permittees have expressed their intention to work cooperatively to control the contribution of pollutants from one portion of the MS4 to another portion of the system. Permittees may control the contribution of pollutants to the MS4 from non-permittee dischargers such as Caltrans, the U.S. Department of Defense, and other state and federal facilities, through interagency agreements.

E. Federal, State, and Regional Regulations

1. The Water Quality Act of 1987 added Section 402(p) to the federal Clean Water Act (CWA) (33 U.S.C. § 1251-1387). This section requires the USEPA to establish regulations setting forth NPDES requirements for storm water discharges in two phases.
 - The USEPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and storm water discharges associated with industrial activities, including construction activities. The Phase I Final Rule was published on November 16, 1990 (55 *Fed. Reg.* 47990).
 - The USEPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (serving a population of less than 100,000), small construction projects (one to five acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the USEPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the United States. The Phase II Final Rule was published on December 8, 1999 (64 *Fed. Reg.* 68722).
2. The USEPA published an 'Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits' on August 26, 1996 (61 *Fed. Reg.* 43761). This policy discusses the appropriate kinds of

water quality-based effluent limitations to be included in NPDES storm water permits to provide for the attainment of water quality standards.

3. The USEPA published an 'Interpretative Policy Memorandum on Reapplication Requirements' for MS4 permits on August 9, 1996 (61 *Fed. Reg.* 41697). This policy requires that MS4 reapplication for reissuance for a subsequent five-year permit term contain certain basic information and information for proposed changes and improvements to the storm water management program and monitoring program.
4. The USEPA has entered into a Memorandum of Agreement (MOA) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for enhancing coordination regarding the protection of endangered and threatened species under Section 7 of the Endangered Species Act and the CWA's Water Quality Standards and NPDES programs. Among other actions, the MOA establishes a framework for coordination of actions by the USEPA, the Services, and CWA delegated States on CWA permit issuance under Section 402 of the CWA [66 *Fed. Reg.* 11202 – 11217].
5. USEPA regulations at 40 CFR 122.26(d)(2)(iv)(A) and 40 CFR 122.26(d)(2)(iv)(C) require that MS4 permittees implement a program to monitor and control pollutants in discharges to the municipal system from industrial and commercial facilities that contribute a substantial pollutant load to the MS4. The regulations require that permittees establish priorities and procedures for inspection of industrial facilities and priority commercial establishments. This permit, consistent with the USEPA policy, incorporates a cooperative partnership, including the specifications of minimum expectations, between the Regional Board and the Permittees for the inspection of industrial facilities and priority commercial establishments to control pollutants in storm water discharges (58 *Fed. Reg.* 61157).
6. Section 402 (p) of the CWA (33 U.S.C. § 1342(p) provides that MS4 permits must "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design engineering method and such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." The State Water Resources Control Board's (State Board) Office of Chief Counsel (OCC) has issued a memorandum interpreting the meaning of MEP to include technical feasibility, cost, and benefit derived with the burden being on the municipality to demonstrate compliance with MEP by showing that a BMP is not technically feasible in the locality or that BMPs costs would exceed any benefit to be derived (dated February 11, 1993).
7. The CWA authorizes the USEPA to permit a state to serve as the NPDES permitting authority in lieu of the USEPA. The State of California has in-lieu authority for an NPDES program. The Porter-Cologne Water Quality Control Act authorizes the State Board, through the Regional Boards, to regulate and control the discharge of pollutants into waters of the State. The State Board entered into a MOA with the USEPA, on

September 22, 1989, to administer the NPDES Program governing discharges to waters of the U.S.

8. Section 303(d) of the CWA requires that the State identify a list of impaired water-bodies and develop and implement Total Maximum Daily Loads (TMDLs) for these waterbodies (33 U.S.C. §1313(d)(1)). A TMDL specifies the maximum amount of a pollutant that a water-body can receive, still meet applicable water quality standards and protect beneficial uses. The USEPA entered into a consent decree with the Natural Resources Defense Council (NRDC), Heal the Bay, and the Santa Monica BayKeeper on March 22, 1999, under which the Regional Board must adopt all TMDLs for the Los Angeles Region within 13 years from that date. This permit incorporates a provision to implement and enforce approved load allocations for municipal storm water discharges and requires amending the SQMP after pollutants loads have been allocated and approved.
9. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA (16 U.S.C. § 1451-1465) amends the Coastal Zone Management Act of 1972, to address five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The Regional Board addresses septic systems through the administration of other programs.
10. On May 18, 2000, the USEPA established numeric criteria for priority toxic pollutants for the State of California (California Toxics Rule (CTR)) 65 *Fed. Reg.* 31682 (40 CFR 131.38), for the protection of human health and aquatic life. These apply as ambient water quality criteria for inland surface waters, enclosed bays, and estuaries. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) – 2000*, on March 2, 2000, for implementation of the CTR (State Board Resolution No. 2000-15 as amended by Board Resolution No. 2000-030). This policy requires that discharges comply with TMDL-derived load allocations as soon as possible but no later than 20 years from the effective date of the policy.
11. The State Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on July 23, 1997. The Ocean Plan contains water quality objectives which apply to all discharges to the coastal waters of California.
12. The State Board in *In Re: California Department of Transportation* (State Board Order WQ 2001-08), determined that the discharge of storm water to ASBS is subject to the prohibition in the Ocean Plan against the discharge of wastes to an ASBS.

13. The Regional Board adopted an updated Water Quality Control Plan (Basin Plan) for the Los Angeles Region on June 13, 1994, '*Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, (1994).' The Basin Plan designates beneficial uses of receiving waters and specifies both narrative and numerical water quality objectives for the receiving waters in Los Angeles County.
14. The Regional Board on September 19, 2001, adopted amendments to the Basin Plan, to incorporate TMDLs for trash in the Los Angeles River (Resolution No. 01-013) and Ballona Creek (Resolution No. 01-014). After approval by the State Board, the Office of Administrative Law, and the USEPA, the TMDLs for trash will be effective and enforceable.
15. The Regional Board on April 13, 1998, approved BMPs for sidewalk rinsing to minimize the discharge of wash waters to the storm drain system (Resolution No. 98-08). By the same resolution, the Regional Board prohibited the discharge of municipal street wash waters to the storm drain system.
16. The Regional Board on April 13, 1998, approved recommended BMPs for industrial/commercial facilities (Resolution No. 98-08).
17. The Regional Board on April 22, 1999, approved a list of BMPs for use in development planning and development construction (Resolution No. 99-03)
18. The Regional Board adopted and approved requirements for new development and significant redevelopment projects in Los Angeles County to control the discharge of storm water pollutants in post-construction storm water, on January 26, 2000, in Board Resolution No. R-00-02. The Regional Board Executive Officer issued the approved Standard Urban Storm Water Mitigation Plans (SUSMPs) on March 8, 2000. The State Board in large part affirmed the Regional Board action and SUSMPs in State Board Order No. WQ 2000-11 issued on October 5, 2000.
 - The State Board's Chief Counsel has issued a statewide policy memorandum (dated December 26, 2000), which interprets the Order to provide broad discretion to Regional Boards and identifies potential future areas for inclusion in SUSMPs and the types of evidence and findings necessary. Such areas include ministerial projects, projects in environmentally sensitive areas, and water quality design criteria for RGOs.
 - The State Board's Chief Counsel interprets the Order to encourage regional solutions and endorses a mitigation fund or "bank" that may be funded by developers who obtain waivers from the numerical design standards for new development and significant redevelopment.
19. 40 CFR 131.10(a) prohibits states from designating waste transport or waste assimilation as a use for any water of the U.S. Authorizing the

construction of a storm water/ urban runoff treatment facility in a jurisdictional water body would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction and operation of a pollution control facility in a water body can impact the physical, chemical, and biological integrity as well as the beneficial uses of the water body. Therefore, storm water treatment and/or mitigation in accordance with SUSMPs and any other requirements of this Order must occur prior to the discharge of storm water into a water of the U.S.

20. The Regional Board supports a Watershed Management Approach to address water quality protection in the region. The objective of the Watershed Management Approach should be to provide a comprehensive and integrated strategy towards water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically defined drainage basin or watershed. It emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with available resources.
21. To promote a watershed management approach, the County of Los Angeles is divided into six Watershed Management Areas (WMAs) as follows:

Malibu Creek and Rural Santa Monica Bay WMA
Ballona Creek and Urban Santa Monica Bay WMA
Los Angeles River WMA
San Gabriel River WMA
Dominguez Channel/Los Angeles Harbor WMA, and
Santa Clara River WMA

Attachment A shows the list of Permittees under each WMA and some Permittees have expressed an intent to form sub-watershed groups within the WMA to promote regional solutions for the mitigation of storm water discharge pollution.

22. To facilitate compliance with federal regulations, the State Board has issued two statewide general NPDES permits for storm water discharges: one for storm water from industrial sites [NPDES No. CAS000001, General Industrial Activity Storm Water Permit (GIASP)] and the other for storm water from construction sites [NPDES No. CAS000002, General Construction Activity Storm Water Permit (GCASP)]. The GCASP was reissued on August 19, 1999. The GIASP was reissued on April 17, 1997. Facilities discharging storm water associated with industrial activities and construction projects with a disturbed area of five acres or more are required to obtain individual NPDES permits for storm water discharges, or to be covered by a statewide general permit by completing and filing a Notice of Intent (NOI) with the State Board. The USEPA guidance anticipates coordination of the state-administered programs for

industrial and construction activities with the local agency program to reduce pollutants in storm water discharges to the MS4.

The Regional Board is the enforcement authority in the Los Angeles Region for the two statewide general permits regulating discharges from industrial facilities and construction sites, and all NPDES storm water and non-storm water permits issued by the Regional Board. These industrial and construction sites and discharges are also regulated under local laws and regulations.

23. The State Board, on October 28, 1968, adopted Resolution No. 68-16, which established an anti-degradation policy for the State and Regional Boards. This policy restricts the degradation of surface waters and protects waterbodies where existing water quality is higher than is necessary for the protection of beneficial uses.
24. The State Board, on June 17, 1999, adopted Order No. WQ 99-05, which, in a precedential decision, identifies acceptable receiving water limitations language to be included in municipal storm water permits issued by the State and Regional Boards. The receiving water limitations included herein are consistent with the State Board Order, USEPA Policy, and the U.S. Appellate court decision in, *Defenders of Wildlife v. Browner* (9th Cir, 1999). The State Board OCC has determined that the federal court decision did not conflict with State Board Order No. WQ 99-05 (memorandum dated October 14, 1999)
25. California Water Code (CWC) § 13263(a) requires that waste discharge requirements issued by the Regional Board shall implement any relevant water quality control plans that have been adopted; shall take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose; other waste discharges; the need to prevent nuisance; and provisions of CWC § 13241. The Regional Board has considered the requirements of § 13263 and § 13241, and applicable plans, policies, rules, and regulations in developing these waste discharge requirements.
26. CWC § 13370 *et seq.* requires that waste discharge requirements issued by the Regional Boards be consistent with provisions of the federal CWA and its amendments.
27. On March 12, 2001, the U.S. Court of Appeals ruled that it is necessary to obtain a NPDES permit for application of aquatic pesticides to waterways. (*Headwaters, Inc. vs. Talent Irrigation District*, 243 F.3d. 526 (9th Cir., 2001)) This decision is controlling in California for nonagricultural applications of pesticides to waterways. The State Board adopted a general NPDES permit (Order No. 2001-12-DWQ) on July 19, 2001, for public entities that discharge pollutants to waters of the U.S. associated with the application of aquatic pesticides for resource or pest management. Public entities that conduct such activities must seek coverage under the general permit.

F. Implementation

1. The California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code § 21000 *et seq.*) requires that public agencies consider the environmental impacts of the projects they approve for development. CEQA applies to projects that are considered discretionary and does not apply to ministerial projects, which involve the use of established standards or objective measurements. A ministerial project may be made discretionary by adopting local ordinance provisions or imposing conditions to create decision-making discretion in approving the project. In the alternative, Permittees may establish standards and objective criteria administratively for storm water mitigation for ministerial projects. For water quality purposes, the Regional Board considers that all new development and significant redevelopment activity in specified categories, that receive approval or permits from a municipality, are subject to storm water mitigation requirements.
2. The objective of this Order is to protect the beneficial uses of receiving waters in Los Angeles County. To meet this objective, this Order requires that the SQMP specify BMPs that will be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable. Further, Permittees are to assure that storm water discharges from the MS4 shall neither cause nor contribute to the exceedance of water quality standards and objectives nor create conditions of nuisance in the receiving waters, and that the discharge of non-storm water to the MS4 has been effectively prohibited.
3. The SQMP required in this Order builds upon the programs established in Order Nos. 90-079, and 96-054, consists of the components recommended in the USEPA guidance manual, and was developed with the cooperation of representatives from the regulated community and environmental groups. The SQMP includes provisions that promote customized initiatives, both on a countywide and watershed basis, in developing and implementing cost-effective measures to minimize discharge of pollutants to the receiving water. The various components of the SQMP, taken as a whole rather than individually, are expected to reduce pollutants in storm water and urban runoff to the maximum extent practicable. Provisions of the SQMP are fully enforceable under provisions of this Order.
4. The emphasis of the SQMP is pollution prevention through education, public outreach, planning, and implementation as source control BMPs first and then Structural and Treatment Control BMPs next. Successful implementation of the provisions of the SQMP will require cooperation and coordination of all public agencies in each Permittee's organization, among Permittees, and with the regulated community.
5. The implementation of a Public Information and Participation Program is a critical component of a storm water management program. An informed and knowledgeable community is critical to the success of a storm water management program since it helps insure the following: (i) greater support for the program as the public gains a greater understanding of

the reasons why it is necessary and important, and (ii) greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

6. This Order includes a Monitoring Program that incorporates Minimum Levels (MLs) established under the SIP. The SIP's MLs represent the lowest quantifiable concentration for priority toxic pollutants that is measurable with the use of proper method-based analytical procedures and factoring out matrix interference. The SIP's MLs therefore represent the best available science for determining MLs and are appropriate for a storm water monitoring program. The use of MLs allows the detection of toxic priority pollutants at concentrations of concern using recent advances in chemical analytical methods.
7. This Order provides flexibility for Permittees to petition the Regional Board Executive Officer to substitute a BMP under the SQMP with an alternative BMP, if they can provide information and documentation on the effectiveness of the alternative, equal to or greater than the prescribed BMP in meeting the objectives of this Order.
8. This Order contemplates that the Permittees are responsible for considering potential storm water impacts when making planning decisions in order to fulfill the Permittees' CWA requirement to reduce the discharge of pollutants in municipal storm water to the MEP from new development and redevelopment activities. However, the Permittees retain authority to make the final land-use decisions and retain full statutory authority for deciding what land uses are appropriate at specific locations within each Permittee's jurisdiction. This Order and its requirements are not intended to restrict or control local land use decision-making authority.
9. This Order is not intended to prohibit the inspection for or abatement of vectors by the State Department of Health Services or local vector agencies in accordance with Cal. Health and Safety Code § 2270 *et seq.* and §116110 *et seq.* Certain Treatment Control BMPs if not properly designed, operated or maintained may create habitats for vectors (e.g. mosquito and rodents). This Order contemplates that the Permittees will closely cooperate and collaborate with local vector control agencies and the State Department of Health Services for the implementation, operation, and maintenance of Treatment Control BMPs in order to minimize the risk to public health from vector borne diseases.

G. Public Process

1. The Regional Board has notified the Permittees and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to submit their written view and recommendations.

2. The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements.
3. The Regional Board has conducted public workshops to discuss drafts of the permit. On April 24, 2001, Regional Board staff conducted a workshop outlining the reasoning behind the changes proposed for the new permit and received input from the Permittees and the public regarding those proposed changes. On July 26, 2001, a second public workshop was held at a special Regional Board meeting. The Permittees and the public had another opportunity to express their opinions regarding the proposed changes to the permit in front of the Regional Board members. A significant number of working meetings with the Permittees and other interested parties have occurred throughout the period from the submittal of the ROWD and completion of the tentative draft, in an attempt to incorporate and address all the comments presented.
4. The Los Angeles County Flood Control District, the County of Los Angeles and the other municipalities are co-permittees as defined in 40 CFR 122.26 (b)(1). Los Angeles County Flood Control District will coordinate with the other municipalities and facilitate program implementation. Each Permittee is responsible only for a discharge for which it is the operator.
5. This Order shall serve as a NPDES Permit, pursuant to CWA § 402, or amendments thereto, and shall take effect 50 days from Order adoption provided the Regional Administrator of the USEPA has no objections.
6. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA (Cal. Pub. Resources Code § 21100 *et seq.*), in accordance with CWC § 13389.
7. Pursuant to CWC §13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to: State Water Resources Control Board, P.O. Box 100, Sacramento, California, 95812, within 30 days of adoption of the Order by the Regional Board.
8. This Order may be modified or alternatively revoked or reissued prior to its expiration date, in accordance with the procedural requirements of the NPDES program, and the CWC for the issuance of waste discharge requirements.

IT IS HEREBY ORDERED that the Los Angeles County Flood Control District, Los Angeles County, and the Cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bell, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Cañada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes,

Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA, as amended, and regulations and guidelines adopted thereunder, shall comply with the following:

Part 1. DISCHARGE PROHIBITIONS

The Permittees shall effectively prohibit non-storm water discharges into the MS4 and watercourses, except where such discharges:

1. Are covered by a separate individual or general NPDES permit for non-storm water discharges; or
2. Fall within one of the categories below, and meet all conditions when specified by the Regional Board Executive Officer:
 - a) Category A - Natural flow:
 - (1) Natural springs and rising ground water;
 - (2) Flows from riparian habitats or wetlands;
 - (3) Stream diversions, permitted by the State Board; and
 - (4) Uncontaminated ground water infiltration [as defined by 40 CFR 35.2005(20)].
 - b) Category B - Flows from emergency fire fighting activity.
 - c) Category C - Flows incidental to urban activities:
 - (1) Reclaimed and potable landscape irrigation runoff;
 - (2) Potable drinking water supply and distribution system releases (consistent with American Water Works Association guidelines for dechlorination and suspended solids reduction practices);
 - (3) Drains for foundations, footings, and crawl spaces;
 - (4) Air conditioning condensate;
 - (5) Dechlorinated/debrominated swimming pool discharges;
 - (6) Dewatering of lakes and decorative fountains;
 - (7) Non-commercial car washing by residents or by non-profit organizations; and
 - (8) Sidewalk rinsing.

The Regional Board Executive Officer may add or remove categories of non-storm water discharges above. Furthermore, in the event that any of

the above categories of non-storm water discharges are determined to be a source of pollutants by the Regional Board Executive Officer, the discharge will no longer be exempt from this prohibition unless the Permittee implements conditions approved by the Regional Board Executive Officer to ensure that the discharge is not a source of pollutants. Notwithstanding the above, the Regional Board Executive Officer may impose additional prohibitions of non-storm water discharges in consideration of anti-degradation policies and TMDLs.

Part 2. RECEIVING WATER LIMITATIONS

1. Discharges from the MS4 that cause or contribute to the violation of Water Quality Standards or water quality objectives are prohibited.
2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible for, shall not cause or contribute to a condition of nuisance.
3. The Permittees shall comply with Part 2.1. and 2.2. through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SQMP and its components and other requirements of this Order including any modifications. The SQMP and its components shall be designed to achieve compliance with receiving water limitations. If exceedances of Water Quality Objectives or Water Quality Standards (collectively, Water Quality Standards) persist, notwithstanding implementation of the SQMP and its components and other requirements of this permit, the Permittee shall assure compliance with discharge prohibitions and receiving water limitations by complying with the following procedure:
 - a) Upon a determination by either the Permittee or the Regional Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, the Permittee shall promptly notify and thereafter submit a Receiving Water Limitations (RWL) Compliance Report (as described in the Program Reporting Requirements, Section I of the Monitoring and Reporting Program) to the Regional Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of Water Quality Standards. This RWL Compliance Report may be incorporated in the annual Storm Water Report and Assessment unless the Regional Board directs an earlier submittal. The RWL Compliance Report shall include an implementation schedule. The Regional Board may require modifications to the RWL Compliance Report.
 - b) Submit any modifications to the RWL Compliance Report required by the Regional Board within 30 days of notification.
 - c) Within 30 days following the approval of the RWL Compliance Report, the Permittee shall revise the SQMP and its components and monitoring program to incorporate the approved modified

BMPs that have been and will be implemented, an implementation schedule, and any additional monitoring required.

- d) Implement the revised SQMP and its components and monitoring program according to the approved schedule.
4. So long as the Permittee has complied with the procedures set forth above and is implementing the revised SQMP and its components, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to develop additional BMPs.

Part 3. STORM WATER QUALITY MANAGEMENT PROGRAM (SQMP) IMPLEMENTATION

A. General Requirements

1. Each Permittee shall, at a minimum, implement the SQMP. The SQMP is an enforceable element of this Order. The SQMP shall be implemented no later than February 1, 2002, unless a later date has been specified for a particular provision in this Order.
2. The SQMP shall, at a minimum, comply with the applicable storm water program requirements of 40 CFR 122.26(d)(2). The SQMP and its components shall be implemented so as to reduce the discharges of pollutants in storm water to the MEP.
3. Each Permittee shall implement additional controls, where necessary, to reduce the discharges of pollutants in storm water to the MEP.
4. Permittees that modify the countywide SQMP (i.e., implement additional controls, implement different controls than described in the countywide SQMP, or determine that certain BMPs in the countywide SQMP are not applicable in the area under its jurisdiction), shall develop a local SQMP, no later than August 1, 2002. The local SQMP shall be customized to reflect the conditions in the area under the Permittee's jurisdiction and shall specify activities being implemented under the appropriate elements described in the countywide SQMP.

B. Best Management Practice Implementation

The Permittees shall implement or require the implementation of the most effective combination of BMPs for storm water/urban runoff pollution control. When implemented, BMPs are intended to result in the reduction of pollutants in storm water to the MEP.

C. Revision of the Storm Water Quality Management Program

The Permittees shall revise the SQMP, at the direction of the Regional Board Executive Officer, to incorporate program implementation amendments so as to comply with regional, watershed specific requirements, and/or waste load

allocations developed and approved pursuant to the process for the designation and implementation of Total Maximum Daily Loads (TMDLs) for impaired water bodies.

D. Designation and Responsibilities of the Principal Permittee

The Los Angeles County Flood Control District is hereby designated as the Principal Permittee. As such, the Principal Permittee shall:

1. Coordinate and facilitate activities necessary to comply with the requirements of this Order, but is not responsible for ensuring compliance of any individual Permittee;
2. Coordinate permit activities among Permittees and act as liaison between Permittees and the Regional Board on permitting issues;
3. Provide personnel and fiscal resources for the necessary updates of the SQMP and its components;
4. Provide technical and administrative support for committees that will be organized to implement the SQMP and its components;
5. Convene the Watershed Management Committees (WMCs) constituted pursuant to Part F, below, upon designation of representatives;
6. Implement the Countywide Monitoring Program required under this Order and evaluate, assess and synthesize the results of the monitoring program;
7. Provide personnel and fiscal resources for the collection, processing and submittal to the Regional Board of annual reports and summaries of other reports required under the SQMP; and
8. Comply with the "Responsibilities of the Permittees" in Part 3.E., below.

E. Responsibilities of the Permittees

Each Permittee is required to comply with the requirements of this Order applicable to discharges within its boundaries (see Findings D.1, D.2. and D.3.) and not for the implementation of the provisions applicable to the Principal Permittee or other Permittees. Each Permittee shall, within its geographic jurisdiction:

1. Comply with the requirements of the SQMP and any modifications thereto;
2. Coordinate among its internal departments and agencies, as appropriate, to facilitate the implementation of the requirements of the SQMP applicable to such Permittee in an efficient and cost-effective manner;
3. Designate a technically knowledgeable representative to the appropriate WMC;

4. Participate in intra-agency coordination (e.g. Fire Department, Building and Safety, Code Enforcement, Public Health, etc.) necessary to successfully implement the provisions of this Order and the SQMP.
5. Prepare an annual Budget Summary of expenditures applied to the storm water management program. This summary shall identify the storm water budget for the following year, using estimated percentages and written explanations where necessary, for the specific categories noted below:
 - a) Program management
 - Administrative costs
 - b) Program Implementation

Where information is available, provide an estimated percent breakdown of expenditures for the categories below:

 - Illicit connection/illicit discharge
 - Development planning
 - Development construction
 - Construction inspection activities
 - Industrial/Commercial inspection activities
 - Public Agency Activities
 - Maintenance of Structural BMPs and Treatment Control BMPs
 - Municipal Street Sweeping
 - Catch basin clean-up
 - Trash collection
 - Capital costs
 - c) Public Information and Participation
 - d) Monitoring Program
 - e) Miscellaneous Expenditures
6. Each Permittee, in addition to the Budget Summary, shall report any supplemental dedicated budgets for the same categories.

F. Watershed Management Committees (WMCs)

1. Each WMC shall be comprised of a voting representative from each Permittee in the WMA.
2. The WMC's chair and secretary shall be chosen by the WMC upon Order adoption and on an annual basis, thereafter. In the absence of volunteer Permittee(s) for the positions, the Principal Permittee shall assume those roles until the WMC chooses members of the committee for the positions.
3. Each WMC shall:
 - a) Facilitate cooperation and exchange of information among Permittees;

- b) Establish additional goals and objectives and associated deadlines for the WMA, as the program implementation progresses;
- c) Prioritize pollution control efforts based on beneficial use impairment(s), watershed characteristics and analysis of results from studies and the monitoring program;
- d) Develop and/or update and monitor the adequate implementation, on an annual basis, of the tasks identified for the WMA;
- e) Assess the effectiveness of, prepare revisions for, and recommend appropriate changes to the SQMP and its components;
- f) Continue to prioritize the Industrial/Commercial critical sources for investigation, outreach and follow-up; and
- g) Meet four times per year and, as necessary.

G. Legal Authority

1. Permittees shall possess the necessary legal authority to prohibit non-storm water discharges to the storm drain system, including, but not limited to:
 - a) Illicit discharges and illicit connections and require removal of illicit connections;
 - b) The discharge of wash waters to the MS4 from the cleaning of gas stations, auto repair garages, or other types of automotive service facilities;
 - c) The discharge of runoff to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;
 - d) The discharge of runoff to the MS4 from areas where repair of machinery and equipment which are visibly leaking oil, fluid or antifreeze, is undertaken;
 - e) The discharge of runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;
 - f) The discharge of chlorinated/ brominated swimming pool water and filter backwash to the MS4;
 - g) The discharge of runoff from the washing of toxic materials from paved or unpaved areas to the MS4;
 - h) Washing impervious surfaces in industrial/commercial areas that results in a discharge of runoff to the MS4;

- i) The discharge of concrete or cement laden wash water from concrete trucks, pumps, tools, and equipment to the MS4; and
 - j) Dumping or disposal of materials into the MS4 other than storm water, such as:
 - (1) Litter, landscape debris and construction debris;
 - (2) Any state or federally banned or unregistered pesticides;
 - (3) Food and food processing wastes; and
 - (4) Fuel and chemical wastes, animal wastes, garbage, batteries, and other materials that have potential adverse impacts on water quality.
2. The Permittees shall possess adequate legal authority to:
- a) Require persons within their jurisdiction to comply with conditions in Permittees' ordinances, permits, contracts, model programs, or orders (i.e. hold dischargers to its MS4 accountable for their contributions of pollutants and flows);
 - b) Utilize enforcement mechanisms to require compliance with Permittees ordinances, permits, contracts, or orders;
 - c) Control pollutants, including potential contribution, in discharges of storm water runoff associated with industrial activities (including construction activities) to its MS4 and control the quality of storm water runoff from industrial sites (including construction sites). This requirement applies to Source Control, and Treatment Control BMPs;
 - d) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions, including the prohibition of illicit discharges to the MS4. Permittees must possess authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities (including construction sites) discharging polluted or with the potential to discharge polluted storm water runoff into its MS4;
 - e) Require the use of BMPs to prevent or reduce the discharge of pollutants to MS4s to MEP; and
 - f) Require that Treatment Control BMPs be properly operated and maintained to prevent the breeding of vectors.
3. Each Permittee shall, no later than November 1, 2002, amend and adopt (if necessary), a Permittee-specific storm water and urban runoff ordinance to enforce all requirements of this permit.
4. Each Permittee shall submit no later than December 2, 2002, a new or updated statement by its legal counsel that the Permittee has obtained all

necessary legal authority to comply with this Order through adoption of ordinances and/or municipal code modifications.

Part 4. SPECIAL PROVISIONS

Maximum Extent Practicable Standard

This permit, and the provisions herein, are intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the MEP from the permitted areas in the County of Los Angeles to the waters of the State.

A. General Requirements

1. Best Management Practice Substitution

The Regional Board Executive Officer may approve any site-specific BMP substitution upon petition by a Permittee(s), if the Permittee can document that:

- a) The proposed alternative BMP or program will meet or exceed the objective of the original BMP or program in the reduction of storm water pollutants; or
- b) The fiscal burden of the original BMP or program is substantially greater than the proposed alternative and does not achieve a substantially greater improvement in storm water quality; and,
- c) The proposed alternative BMP or program will be implemented within a similar period of time.

B. Public Information and Participation Program (PIPP)

The Principal Permittee shall implement a Public Information and Participation Program (PIPP) that includes, but is not limited to, the requirements listed in this section. The Principal Permittee shall be responsible for developing and implementing the Public Education Program, as described in the SQMP, and shall coordinate with Permittees to implement specific requirements.

The objectives of the PIPP are as follows:

- To measurably increase the knowledge of the target audiences regarding the MS4, the impacts of storm water pollution on receiving waters, and potential solutions to mitigate the problems caused;
- To measurably change the waste disposal and runoff pollution generation behavior of target audiences by encouraging implementation of appropriate solutions; and
- To involve and engage socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of storm water pollution.

The Principal Permittee shall convene an advisory committee to provide input and assistance in meeting the goals and objectives of the public education campaign. The advisory committee shall be consulted during the process of developing the PIPP campaign, and shall provide comments and advice during the process of preparing a Request For Proposals for a storm water public education contractor. The committee may participate as a part of a working group that evaluates contractor proposals and other tasks as appropriate. The committee shall be comprised of representatives of the environmental community, Permittee cities, Regional Board staff, and experts in the fields of public education and marketing. The Principal Permittee shall ensure that the committee meets at least once a year.

1. Residential Program

a) "No Dumping" Message

Each Permittee shall mark all storm drain inlets that they own with a legible "no dumping" message. In addition, signs with prohibitive language discouraging illegal dumping must be posted at designated public access points to creeks, other relevant water bodies, and channels no later than February 2, 2004. Signage and storm drain messages shall be legible and maintained as necessary during the term of the permit.

b) Countywide Hotline

The 888-CLEAN-LA hotline will serve as the general public reporting contact for reporting clogged catch basin inlets and illicit discharges/dumping, faded or lack of catch basin stencils, and general storm water management information. Each Permittee may establish its own hotline if preferred. Permittees shall include this information, updated when necessary, in public information, and the government pages of the telephone book, as they are developed or published. The Principal Permittee shall compile a list of the general public reporting contacts from all Permittees and make this information available on the web site (888CleanLA.com) and upon request. Permittees shall provide the Principal Permittee with their reporting contacts no later than March 1, 2002. Permittees are responsible for providing current, updated information to the Principal Permittee.

c) Outreach and Education

(1) The Principal Permittee shall continue to implement the following activities that were components of the first five-year PIPP:

- (i) Advertising;
- (ii) Media relations;
- (iii) Public service announcements;
- (iv) "How To" instructional material distributed in a targeted and activity-related manner;

- (v) Corporate, community association, environmental organization and entertainment industry tie-ins; and
 - (vi) Events targeted to specific activities and population subgroups.
- (2) The Principal Permittee shall develop a strategy to educate ethnic communities and businesses through culturally effective methods. Details of this strategy should be incorporated into the Public Education Program, and implemented, no later than February 3, 2003.
 - (3) The Principal Permittee shall enhance the existing outreach efforts to residents and businesses related to the proper disposal of cigarette butts.
 - (4) Each Permittee shall conduct educational activities within its jurisdiction and participate in countywide events.
 - (5) The Principal Permittee shall organize Public Outreach Strategy meetings for Permittees on a quarterly basis, beginning no later than May 1, 2002. The Principal Permittee shall provide guidance for Permittees to augment the countywide outreach and education program. Permittees shall coordinate regional and local outreach and education to reduce duplication of efforts. Permittees are encouraged to include other interested parties in the outreach strategy to strengthen and coordinate educational efforts.
 - (6) The Principal Permittee shall ensure that a minimum of 35 million impressions per year are made on the general public about storm water quality via print, local TV access, local radio, or other appropriate media.
 - (7) The Principal Permittee, in cooperation with the Permittees, shall provide schools within each School District in the County with materials, including, but not limited to, videos, live presentations, and other information necessary to educate a minimum of 50 percent of all school children (K-12) every 2 years on storm water pollution.
 - (8) Permittees shall provide the contact information for their appropriate staff responsible for storm water public education activities to the Principal Permittee no later than April 1, 2002, and changes to contact information no later than 30 days after a change occurs.
 - (9) The Principal Permittee shall develop a strategy to measure the effectiveness of in-school educational programs. The protocol shall include assessment of students' knowledge of storm water pollution problems and

solutions before and after educational efforts are conducted. The protocol shall be developed and submitted to the Regional Board Executive Officer for approval no later than May 1, 2002. It shall be implemented upon approval.

- (10) In order to ensure that the PIPP is demonstrably effective in changing the behavior of the public, the Principal Permittee shall develop a behavioral change assessment strategy no later than May 1, 2002. The strategy shall be developed based on sociological data and studies (such as the County Segmentation Study). The Principal Permittee shall submit the assessment strategy to the Regional Board Executive Office for approval. It shall be implemented on approval.

d) Pollutant-Specific Outreach

The Principal Permittee, in cooperation with Permittees, shall coordinate to develop outreach programs that focus on the watershed-specific pollutants listed in Table 1 no later than February 3, 2003. Metals may be appropriately addressed through the Industrial/Commercial Facilities Program (e.g. distribute education materials on appropriate BMPs for metal waste management to facilities that have been identified as a potential source, such as metal fabricating facilities). Region-wide pollutants may be included in the Principal Permittee's mass media outreach efforts.

Watershed	Target Pollutants for Outreach
Ballona Creek	Trash, Indicator Bacteria, Metals, PAHs
Malibu Creek	Trash, Nutrients (Nitrogen), Indicator Bacteria, Sediments
Los Angeles River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals, Pesticides, PAHs
San Gabriel River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals
Santa Clara River	Nutrients (Nitrogen), Coliform
Dominguez Channel	Trash, Indicator Bacteria, PAHs

Each Permittee shall make outreach materials available to the general public and target audiences, such as schools, community groups, contractors and developers, and at appropriate public counters and events. Outreach material shall include information on pollutants, sources of concern, and source abatement measures.

2. Businesses Program

a) Corporate Outreach

The Principal Permittee shall develop and implement a Corporate Outreach program to educate and inform corporate managers about storm water regulations. The program shall target RGOs and restaurant chains. At a minimum, this program shall include:

- (1) Conferring with corporate management to explain storm water regulations;
- (2) Distribution and discussion of educational material regarding storm water pollution and BMPs, and provide managers with suggestions to facilitate employee compliance with storm water regulations.

Corporate Outreach for all RGOs and restaurant chain corporations shall be conducted not less than twice during the permit term, with the first outreach contact to begin no later than February 3, 2003.

b) Business Assistance Program

The Principal Permittee and Permittees may implement a Business Assistance Program to provide technical resource assistance to small businesses to advise them on BMPs implementation to reduce the discharge of pollutants in storm water runoff. Programs may include:

- (1) On-site technical assistance or consultation via telephone to identify and implement storm water pollution prevention methods and best management practices; and
- (2) Making available, distributing, and discussing of applicable BMP and educational materials.

C. Industrial/Commercial Facilities Control Program

Each Permittee shall require implementation of pollutant reduction and control measures at industrial and commercial facilities, with the objective of reducing pollutants in storm water runoff. Except as specified in other sections of this Order, pollutant reduction and control measures can be used alone or in combination, and can include Structural and Source Control BMPs, and operation and maintenance procedures, which can be applied before, during, and/or after pollution generating activities. At a minimum, the Industrial/Commercial Facilities Control Program shall include requirements to: (1) track, (2) inspect, and (3) ensure compliance at industrial and commercial facilities that are critical sources of pollutants in storm water.

1. Track Critical Sources

- a) Each Permittee shall maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of storm water pollution. Critical sources to be tracked are summarized below, and also specified in Attachment B:
- (1) Commercial Facilities
 - restaurants;
 - automotive service facilities; and
 - RGOs and automotive dealerships.
 - (2) USEPA Phase I Facilities (Tier 1 and 2)
 - (3) Other Federally-mandated Facilities [as specified in 40 CFR 122.26(d)(2)(iv)(C)]
 - municipal landfills;
 - hazardous waste treatment, disposal, and recovery facilities; and
 - facilities subject to SARA Title III (also known as EPCRA).
- b) Each Permittee shall include the following minimum fields of information for each industrial and commercial facility:
- name of facility and name of owner/operator;
 - address;
 - coverage under the GIASP or other individual or general NPDES permits; and
 - a narrative description including SIC codes that best reflects the industrial activities at and principal products of each facility.

The Regional Board encourages Permittees to add other fields of information, such as material usage and/or industrial output, and discrepancies between SIC Code designations (as reported by facility operators) and the actual type of industrial activity has the potential to pollute storm water. In addition, the Regional Board recommends use of an automated database system, such as a Geographical Information System (GIS) or Internet-based system; however, this is not required.

- c) Each Permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available intra-agency informational databases (e.g. business licenses, pretreatment permits, sanitary sewer hook-up permits).

2. Inspect Critical Sources

Each Permittee shall inspect all facilities in the categories and at a level and frequency as specified in the following subsections.

a) Commercial Facilities

(1) Restaurants

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee, in cooperation with its appropriate department (such as health or public works), shall inspect all restaurants within its jurisdiction to confirm that storm water BMPs are being effectively implemented in compliance with State law, County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each restaurant, inspectors shall verify that the restaurant operator:

- has received educational materials on storm water pollution prevention practices;
- does not pour oil and grease or oil and grease residue onto a parking lot, street or adjacent catch basin;
- keeps the trash bin area clean and trash bin lids closed, and does not fill trash bins with washout water or any other liquid;
- does not allow illicit discharges, such as discharge of washwater from floormats, floors, porches, parking lots, alleys, sidewalks and street areas (in the immediate vicinity of the establishment), filters or garbage/trash containers;
- removes food waste, rubbish or other materials from parking lot areas in a sanitary manner that does not create a nuisance or discharge to the storm drain.

(2) Automotive Service Facilities

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee shall inspect all automotive service facilities within its jurisdiction to confirm that storm water BMPs are effectively implemented in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each

automotive service facility, inspectors shall verify that each operator:

- maintains the facility area so that it is clean and dry and without evidence of excessive staining;
- implements housekeeping BMPs to prevent spills and leaks;
- properly discharges wastewaters to a sanitary sewer and/or contains wastewaters for transfer to a legal point of disposal;
- is aware of the prohibition on discharge of non-storm water to the storm drain;
- properly manages raw and waste materials including proper disposal of hazardous waste;
- protects outdoor work and storage areas to prevent contact of pollutants with rainfall and runoff;
- labels, inspects, and routinely cleans storm drain inlets that are located on the facility's property; and
- trains employees to implement storm water pollution prevention practices.

(3) Retail Gasoline Outlets and Automotive Dealerships

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that BMPs are being effectively implemented at each RGO and automotive dealership within its jurisdiction, in compliance with the SQMP, Regional Board Resolution 98-08, and the Stormwater Quality Task Force Best Management Practice Guide for RGOs. At each RGO and automotive dealership, inspectors shall verify that each operator:

- routinely sweeps fuel-dispensing areas for removal of litter and debris, and keeps rags and absorbents ready for use in case of leaks and spills;
- is aware that washdown of facility area to the storm drain is prohibited;
- is aware of design flaws (such as grading that doesn't prevent run-on, or inadequate roof covers and berms), and that equivalent BMPs are implemented;
- inspects and cleans storm drain inlets and catch basins within each facility's boundaries no later than October 1st of each year;

- posts signs close to fuel dispensers, which warn vehicle owners/operators against “topping off” of vehicle fuel tanks and installation of automatic shutoff fuel dispensing nozzles;
- routinely checks outdoor waste receptacle and air/water supply areas, cleans leaks and drips, and ensures that only watertight waste receptacles are used and that lids are closed; and
- trains employees to properly manage hazardous materials and wastes as well as to implement other storm water pollution prevention practices.

b) Phase I Facilities

Permittees need not inspect facilities that have been inspected by the Regional Board within the past 24 months. For the remaining Phase I facilities that the Regional Board has not inspected, each Permittee shall conduct compliance inspections as specified below.

Frequency of Inspection

Facilities in Tier 1 Categories: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Facilities in Tier 2 Categories: Twice during the 5-year term of the permit, provided that the first inspection occurs no later than August 1, 2004. Permittees need not perform additional inspections at those facilities determined to have no risk of exposure of industrial activity to storm water. For those facilities that do have exposure of industrial activities to storm water, a Permittee may reduce the frequency of additional compliance inspections to once every 5 years, provided that the Permittee inspects at least 20% of the facilities in Tier 2 each year.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

c) Other Federally-mandated Facilities

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

3. Ensure Compliance of Critical Sources

- a) **BMP Implementation:** In the event that a Permittee determines that a BMP specified by the SQMP or Regional Board Resolution 98-08 is infeasible at any site, that Permittee shall require implementation of other BMPs that will achieve the equivalent reduction of pollutants in the storm water discharges. Likewise, for those BMPs that are not adequate to achieve water quality objectives, Permittees may require additional site-specific controls, such as Treatment Control BMPs.
- b) **Environmentally Sensitive Areas and Impaired Waters:** For critical sources that are in ESAs or that are tributary to CWA § 303(d) impaired water bodies, Permittees shall consider requiring operators to implement additional controls to reduce pollutants in storm water runoff that are causing or contributing to the exceedences of Water Quality Objectives.
- c) **Progressive Enforcement:** Each Permittee shall implement a progressive enforcement policy to ensure that facilities are brought into compliance with all storm water requirements within a reasonable time period as specified below.
- (1) In the event that a Permittee determines, based on an inspection conducted above, that an operator has failed to adequately implement all necessary BMPs, that Permittee shall take progressive enforcement action which, at a minimum, shall include a follow-up inspection within 4 weeks from the date of the initial inspection.

- (2) In the event that a Permittee determines that an operator has failed to adequately implement BMPs after a follow-up inspection, that Permittee shall take further enforcement action as established through authority in its municipal code and ordinances or through the judicial system.
 - (3) Each Permittee shall maintain records, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.
- d) Interagency Coordination
- (1) **Referral of Violations of the SQMP, Regional Board Resolution 98-08, and Municipal Storm Water Ordinances:** A Permittee may refer a violation(s) to the Regional Board provided that that Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:
 - Two follow-up inspections, and
 - Two warning letters or notices of violation.
 - (2) **Referral of Violations of the GIASP, including Requirements to File a Notice of Intent:** For those facilities in violation of the GIASP, Permittees may escalate referral of such violations to the Regional Board after one inspection and one written notice to the operator regarding the violation. In making such referrals, Permittees shall include, at a minimum, the following documentation:
 - Name of the facility;
 - Operator of the facility;
 - Owner of the facility;
 - Industrial activity being conducted at the facility that is subject to the GIASP; and
 - Records of communication with the facility operator regarding the violation, which shall include at least an inspection report and one written notice of the violation.

Permittees shall, at a minimum, make such referrals on a quarterly basis.
 - (3) **Investigation of Complaints Regarding Facilities – Transmitted by the Regional Board Staff:** Each Permittee shall initiate, within one business day, investigation of complaints (other than non-storm water discharges) regarding facilities within its jurisdiction. The initial investigation shall include, at a minimum, a limited

inspection of the facility to confirm the complaint to determine if the facility is effectively complying with the SQMP and municipal storm water/urban runoff ordinances, and to oversee corrective action.

- (4) **Support of Regional Board Enforcement Actions:** As directed by the Regional Board Executive Officer, Permittees shall support Regional Board enforcement actions by: assisting in identification of current owners, operators, and lessees of facilities; providing staff, when available, for joint inspections with Regional Board inspectors; appearing as witnesses in Regional Board enforcement hearings; and providing copies of inspection reports and other progressive enforcement documentation.
- (5) **Participation in a Task Force:** The Permittees, Regional Board, and other stakeholders may form a Storm Water Task Force, the purpose of which is to communicate concerns regarding special cases of storm water violations by industrial and commercial facilities and to develop a coordinated approach to enforcement action.

D. Development Planning Program

The Permittees shall implement a development-planning program that will require all Planning Priority development and Redevelopment projects to:

- Minimize impacts from storm water and urban runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances ;
- Maximize the percentage of pervious surfaces to allow percolation of storm water into the ground;
- Minimize the quantity of storm water directed to impervious surfaces and the MS4;
- Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices;
- Properly design and maintain Treatment Control BMPs in a manner that does not promote the breeding of vectors; and
- Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.

1. Peak Flow Control

The Permittees shall control post-development peak storm water runoff discharge rates, velocities, and duration (peak flow control) in Natural

Drainage Systems (i.e., mimic pre-development hydrology) to prevent accelerated stream erosion and to protect stream habitat. Natural Drainage Systems are located in the following areas:

- a) Malibu Creek;
- b) Topanga Canyon Creek;
- c) Upper Los Angeles River;
- d) Upper San Gabriel River;
- e) Santa Clara River; and
- f) Los Angeles County Coastal streams (see Basin Plan Table 2-1).

The Principal Permittee in consultation with Permittees shall develop numerical criteria for peak flow control, based on the results of the Peak Discharge Impact Study (see Monitoring Program Section II.I).

Each Permittee shall, no later than February 1, 2005, implement numerical criteria for peak flow control.

A Permittee or group of Permittees may substitute for the countywide peak flow control criteria with a Hydromodification Control Plan (HCP), on approval by the Regional Board, in the following circumstances:

- (1) Stream or watershed-specific conditions indicate the need for a different peak flow control criteria, and the alternative numerical criteria is developed through the application of hydrologic modeling and supporting field observations; or
- (2) A watershed-wide plan has been developed for implementation of control measures to reduce erosion and stabilize drainage systems on a watershed basis.

2. Standard Urban Storm Water Mitigation Plans (SUSMPs)

- a) Each Permittee shall amend codes and ordinances not later than August 1, 2002 to give legal effect to SUSMP changes contained in this Order. Changes to SUSMP requirements shall take effect not later than September 2, 2002.
- b) Each Permittee shall require that a single-family hillside home:
 - (1) Conserve natural areas;
 - (2) Protect slopes and channels;
 - (3) Provide storm drain system stenciling and signage;
 - (4) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

- (5) Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.
- c) Each Permittee shall require that a SUSMP as approved by the Regional Board in Board Resolution No. R 00-02 be implemented for the following categories of developments:
 - (1) Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments);
 - (2) A 100,000 or more square feet of impervious surface area industrial/ commercial development;
 - (3) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539);
 - (4) Retail gasoline outlets;
 - (5) Restaurants (SIC 5812);
 - (6) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces; and
 - (7) Redevelopment projects in subject categories that meet Redevelopment thresholds.
- d) Each Permittee shall submit an ESA Delineation Map for its jurisdictional boundary, based on the Regional Board's ESA Definition, no later than June 3, 2002, for approval by the Regional Board Executive Officer in consultation with the California Department of Fish and Game, and the California Coastal Commission.
- e) Each Permittee shall require the implementation of SUSMP provisions no later than September 2, 2002, for all projects located in or directly adjacent to or discharging directly to an ESA, where the development will:
 - (1) Discharge storm water and urban runoff that is likely to impact a sensitive biological species or habitat; and
 - (2) Create 2,500 square feet or more of impervious surface area.

3. Numerical Design Criteria

The Permittees shall require that post-construction Treatment Control BMPs incorporate, at a minimum, either a volumetric or flow based treatment control design standard, or both, as identified below to mitigate (infiltrate, filter or treat) storm water runoff:

- a) Volumetric Treatment Control BMP
 - (1) The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area, from

the formula recommended in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998)*; or

- (2) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in *California Stormwater Best Management Practices Handbook – Industrial/ Commercial, (1993)*; or
 - (3) The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a storm water conveyance system; or
 - (4) The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for “treatment” (0.75 inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event.
- b) Flow Based Treatment Control BMP
- (1) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
 - (2) The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for Los Angeles County; or
 - (3) The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.
4. Applicability of Numerical Design Criteria

The Permittees shall require the following categories of Planning Priority Projects to design and implement post-construction treatment controls to mitigate storm water pollution:

- a) Single-family hillside residential developments of one acre or more of surface area;
- b) Housing developments (includes single family homes, multifamily homes, condominiums, and apartments) of ten units or more;
- c) A 100,000 square feet or more impervious surface area industrial/commercial development;
- d) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534 and 7536-7539) [5,000 square feet or more of surface area];
- e) Retail gasoline outlets [5,000 square feet or more of impervious surface area and with projected Average Daily Traffic (ADT) of 100 or more vehicles]. Subsurface Treatment Control BMPs

which may endanger public safety (i.e., create an explosive environment) are considered not appropriate;

- f) Restaurants (SIC 5812) [5,000 square feet or more of surface area];
 - g) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces;
 - h) Projects located in, adjacent to or discharging directly to an ESA that meet threshold conditions identified above in 2.e; and
 - i) Redevelopment projects in subject categories that meet Redevelopment thresholds.
5. Not later than March 10, 2003, each Permittee shall require the implementation of SUSMP and post-construction control requirements for the industrial/commercial development category to projects that disturb one acre or more of surface area.
6. Site Specific Mitigation

Each Permittee shall, no later than September 2, 2002, require the implementation of a site-specific plan to mitigate post-development storm water for new development and redevelopment not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where one or more of the following project characteristics exist:

- a) Vehicle or equipment fueling areas;
 - b) Vehicle or equipment maintenance areas, including washing and repair;
 - c) Commercial or industrial waste handling or storage;
 - d) Outdoor handling or storage of hazardous materials;
 - e) Outdoor manufacturing areas;
 - f) Outdoor food handling or processing;
 - g) Outdoor animal care, confinement, or slaughter; or
 - h) Outdoor horticulture activities.
7. Redevelopment Projects

The Permittees shall apply the SUSMP, or site specific requirements including post-construction storm water mitigation to all Planning Priority Projects that undergo significant Redevelopment in their respective categories.

- a) Significant Redevelopment means land-disturbing activity that results in the creation or addition or replacement of 5,000 square

feet or more of impervious surface area on an already developed site.

Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, the entire project must be mitigated. Where Redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

- b) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety.
- c) Existing single family structures are exempt from the Redevelopment requirements.

8. Maintenance Agreement and Transfer

Each Permittee shall require that all developments subject to SUSMP and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and or conditional use permits. Verification at a minimum shall include:

- a) The developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either
- b) A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and that it meets all local agency design standards; or
- c) Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or
- d) Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or
- e) Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

9. Regional Storm Water Mitigation Program

A Permittee or Permittee group may apply to the Regional Board for approval of a regional or sub-regional storm water mitigation program to substitute in part or wholly SUSMP requirements. Upon review and a determination by the Regional Board Executive Officer that the proposal is technically valid and appropriate, the Regional Board may consider for approval such a program if its implementation will:

- a) Result in equivalent or improved storm water quality;
- b) Protect stream habitat;
- c) Promote cooperative problem solving by diverse interests;
- d) Be fiscally sustainable and has secure funding; and
- e) Be completed in five years including the construction and start-up of treatment facilities.

Nothing in this provision shall be construed as to delay the implementation of SUSMP requirements, as approved in this Order.

10. Mitigation Funding

The Permittees may propose a management framework, for endorsement by the Regional Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

- a) A waiver for impracticability is granted;
- b) Legislative funds become available;
- c) Off-site mitigation is required because of loss of environmental habitat; or
- d) An approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.

11. California Environmental Quality Act (CEQA) Document Update

Each Permittee shall incorporate into its CEQA process, with immediate effect, procedures for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents. The procedures shall require consideration of the following:

- a) Potential impact of project construction on storm water runoff;
- b) Potential impact of project post-construction activity on storm water runoff;
- c) Potential for discharge of storm water from areas from material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous

materials handling or storage, delivery areas or loading docks, or other outdoor work areas;

- d) Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit;
- e) Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies;
- f) Potential for significant changes in the flow velocity or volume of storm water runoff that can cause environmental harm; and
- g) Potential for significant increases in erosion of the project site or surrounding areas.

12. General Plan Update

- a) Each Permittee shall amend, revise or update its General Plan to include watershed and storm water quality and quantity management considerations and policies when any of the following General Plan elements are updated or amended: (i) Land Use, (ii) Housing, (iii) Conservation, and (iv) Open Space.
- b) Each Permittee shall provide the Regional Board with the draft amendment or revision when a listed General Plan element or the General Plan is noticed for comment in accordance with Cal. Govt. Code § 65350 *et seq.*

13. Targeted Employee Training

Each Permittee shall train its employees in targeted positions (whose jobs or activities are engaged in development planning) regarding the development planning requirements on an annual basis beginning no later than August 1, 2002, and more frequently if necessary. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003.

14. Developer Technical Guidance and Information

- a) Each Permittee shall develop and make available to the developer community SUSMP (development planning) guidelines immediately.
- b) The Principal Permittee in partnership with Permittees shall issue no later than February 2, 2004, a technical manual for the siting and design of BMPs for the development community in Los Angeles County. The technical manual may be adapted from the revised California Storm Water Quality Task Force Best Management Practices Handbooks scheduled for publication in September 2002. The technical manual shall at a minimum include:

- (1) Treatment Control BMPs based on flow-based and volumetric water quality design criteria for the purposes of countywide consistency;
- (2) Peak Flow Control criteria to control peak discharge rates, velocities and duration;
- (3) Expected pollutant removal performance ranges obtained from national databases, technical reports and the scientific literature;
- (4) Maintenance considerations; and
- (5) Cost considerations.

E. Development Construction Program

1. Each Permittee shall implement a program to control runoff from construction activity at all construction sites within its jurisdiction. The program shall ensure the following minimum requirements are effectively implemented at all construction sites:
 - a) Sediments generated on the project site shall be retained using adequate Treatment Control or Structural BMPs;
 - b) Construction-related materials, wastes, spills, or residues shall be retained at the project site to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff;
 - c) Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site; and
 - d) Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs (as approved in Regional Board Resolution No. 99-03), such as the limiting of grading scheduled during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
2. For construction sites one acre and greater, each Permittee shall comply with all conditions in section E.1. above and shall:
 - a) Require the preparation and submittal of a Local Storm Water Pollution Prevention Plan (Local SWPPP), for approval prior to issuance of a grading permit for construction projects.
The Local SWPPP shall include appropriate construction site BMPs and maintenance schedules. (A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP). The Local SWPPP must include the rationale used for selecting or rejecting BMPs. The project architect, or engineer of record, or authorized

qualified designee, must sign a statement on the Local SWPPP to the effect:

“As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project’s construction activities on storm water quality. The project owner and contractor are aware that the selected BMPs must be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.”

The landowner or the landowner’s agent shall sign a statement to the effect:

“I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/or inaccurate information, failing to update the Local SWPPP to reflect current conditions, or failing to properly and/or adequately implement the Local SWPPP may result in revocation of grading and/or other permits or other sanctions provided by law.”

The Local SWPPP certification shall be signed by the landowner as follows, for a corporation: by a responsible corporate officer which means (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of the construction activity if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; for a partnership or sole proprietorship: by a general partner or the proprietor; or for a municipality or other public agency: by an elected official, a ranking management official (e.g., County Administrative Officer, City Manager, Director of Public Works, City Engineer, District Manager), or the manager of the construction activity if authority to sign Local SWPPPs has been assigned or delegated to the manager in accordance with established agency policy.

- b) Inspect all construction sites for storm water quality requirements during routine inspections a minimum of once during the wet season. The Local SWPPP shall be reviewed for compliance with local codes, ordinances, and permits. For inspected sites that have not adequately implemented their Local SWPPP, a follow-up inspection to ensure compliance will take place within 2 weeks. If compliance has not been attained, the Permittee will take additional actions to achieve compliance (as specified in municipal

- codes). If compliance has not been achieved, and the site is also covered under a statewide general construction storm water permit, each Permittee shall enforce their local ordinance requirements, and if non-compliance continues the Regional Board shall be notified for further joint enforcement actions.
- c) Require, no later than March 10, 2003, prior to issuing a grading permit for all projects less than five acres requiring coverage under a statewide general construction storm water permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for permit coverage and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.
3. For sites five acres and greater, each Permittee shall comply with all conditions in Sections E.1. and E.2. and shall:
- a) Require, prior to issuing a grading permit for all projects requiring coverage under the state general permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for coverage under the GCASP and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.
- b) Require proof of an NOI and a copy of the SWPPP at any time a transfer of ownership takes place for the entire development or portions of the common plan of development where construction activities are still on-going.
- c) Use an effective system to track grading permits issued by each Permittee. To satisfy this requirement, the use of a database or GIS system is encouraged, but not required.
4. GCASP Violation Referrals
- a) Referral of Violations of the SQMP, Regional Board Resolution 98-08, and municipal storm water ordinances:
A Permittee may refer a violation(s) to the Regional Board provided that the Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:
- Two follow-up inspections within 3 months, and
 - Two warning letters or notices of violation.
- b) Referral of Violations of GCASP Filing Requirements:
For those projects subject to the GCASP, Permittees shall refer non-filers (i.e., those projects which cannot demonstrate that they have a WDID number) to the Regional Board, within 15 days of

making a determination. In making such referrals, Permittees shall include, at a minimum, the following documentation:

- Project location;
- Developer;
- Estimated project size; and
- Records of communication with the developer regarding filing requirements.

5. Each Permittee shall train employees in targeted positions (whose jobs or activities are engaged in construction activities including construction inspection staff) regarding the requirements of the storm water management program no later than August 1, 2002, and annually thereafter. For Permittees with a population of 250,000 or more (2000 U.S. Census), initial training shall be completed no later than February 3, 2003. Each Permittee shall maintain a list of trained employees.

F. Public Agency Activities Program

Each Permittee shall implement a Public Agency program to minimize storm water pollution impacts from public agency activities. Public Agency requirements consist of:

- Sewage Systems Maintenance, Overflow, and Spill Prevention
- Public Construction Activities Management
- Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management
- Landscape and Recreational Facilities Management
- Storm Drain Operation and Management
- Streets and Roads Maintenance
- Parking Facilities Management
- Public Industrial Activities Management
- Emergency Procedures
- Treatment Feasibility Study

1. Sewage System Maintenance, Overflow, and Spill Prevention
 - a) Each Permittee shall implement a response plan for overflows of the sanitary sewer system within their respective jurisdiction, which shall consist at a minimum of the following:
 - (1) Investigation of any complaints received;
 - (2) Upon notification, immediate response to overflows for containment; and
 - (3) Notification to appropriate sewer and public health agencies when a sewer overflows to the MS4.
 - b) In addition to 1.a.1, 1.a.2, and 1.a.3 above, for those Permittees, which own and/or operate a sanitary sewer system, the Permittee shall also implement the following requirements:

- (1) Procedures to prevent sewage spills or leaks from sewage facilities from entering the MS4; and
 - (2) Identify, repair, and remediate sanitary sewer blockages, exfiltration, overflow, and wet weather overflows from sanitary sewers to the MS4.
2. Public Construction Activities Management
 - a) Each Permittee shall implement the Development Planning Program requirements (Permit Part 4.D) at public construction projects.
 - b) Each Permittee shall implement the Development Construction Program requirements (Permit Part 4.E) at Permittee owned construction sites.
 - c) Each Permittee shall obtain coverage under the GCASP for public construction sites 5 acres or greater (or part of a larger area of development) except that a municipality under 100,000 in population (1990 U.S. Census) need not obtain coverage under a separate permit until March 10, 2003.
 - d) Each Permittee, no later than March 10, 2003, shall obtain coverage under a statewide general construction storm water permit for public construction sites for projects between one and five acres.
3. Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management
 - a) Each Permittee, consistent with the SQMP, shall implement SWPPPs for public vehicle maintenance facilities, material storage facilities, and corporation yards which have the potential to discharge pollutants into storm water.
 - b) Each Permittee shall implement BMPs to minimize pollutant discharges in storm water including but not be limited to:
 - (1) Good housekeeping practices;
 - (2) Material storage control;
 - (3) Vehicle leaks and spill control; and
 - (4) Illicit discharge control.
 - c) Each Permittee shall implement the following measures to prevent the discharge of pollutants to the MS4:
 - (1) For existing facilities, that are not already plumbed to the sanitary sewer, all vehicle and equipment wash areas (except for fire stations) shall either be:

- (i) Self-contained;
 - (ii) Equipped with a clarifier;
 - (iii) Equipped with an alternative pre-treatment device;
or
 - (iv) Plumbed to the sanitary sewer.
- (2) For new facilities, or during redevelopment of existing facilities (including fire stations), all vehicle and equipment wash areas shall be plumbed to the sanitary sewer and be equipped with a pre-treatment device in accordance with requirements of the sewer agency.

4. Landscape and Recreational Facilities Management

Each Permittee shall implement the following requirements:

- a) A standardized protocol for the routine and non-routine application of pesticides, herbicides (including pre-emergents), and fertilizers;
- b) Consistency with State Board's guidelines and monitoring requirements for application of aquatic pesticides to surface waters (WQ Order No. 2001-12 DWQ);
- c) Ensure no application of pesticides or fertilizers immediately before, during, or immediately after a rain event or when water is flowing off the area to be applied;
- d) Ensure that no banned or unregistered pesticides are stored or applied;
- e) Ensure that staff applying pesticides are certified by the California Department of Food and Agriculture, or are under the direct supervision of a certified pesticide applicator;
- f) Implement procedures to encourage retention and planting of native vegetation and to reduce water, fertilizer, and pesticide needs;
- g) Store fertilizers and pesticides indoors or under cover on paved surfaces or use secondary containment;
- h) Reduce the use, storage, and handling of hazardous materials to reduce the potential for spills; and
- i) Regularly inspect storage areas.

5. Storm Drain Operation and Management

- a) Each Permittee shall designate catch basin inlets within its jurisdiction as one of the following:
- Priority A: Catch basins that are designated as consistently generating the highest volumes of trash and/or debris.
 - Priority B: Catch basins that are designated as consistently generating moderate volumes of trash and/or debris.
 - Priority C: Catch basins that are designated as generating low volumes of trash and/or debris.

- b) Permittees subject to a trash TMDL (Los Angeles River and Ballona Creek WMAs) shall continue to implement the requirements listed below until trash TMDL implementation measures are adopted. Thereafter, the subject Permittees shall implement programs in conformance with the TMDL implementation schedule, which shall include an effective combination of measures such as street sweeping, catch basin cleaning, installation of treatment devices and trash receptacles, or other BMPs. Default requirements include:

- (1) Inspection and cleaning of catch basins between May 1 and September 30 of each year;
- (2) Additional cleaning of any catch basin that is at least 40% full of trash and/or debris;
- (3) Record keeping of catch basins cleaned; and
- (4) Recording of the overall quantity of catch basin waste collected.

If the implementation phase for the Los Angeles River and Ballona Creek Trash TMDLs has not begun by October 2003, subject Permittees shall implement the requirements described below in subsection 5(c), until such time programs in conformance with the subject Trash TMDLs are being implemented.

- c) Permittees not subject to a trash TMDL shall:
- (1) Clean catch basins according to the following schedule:
 - Priority A: A minimum of three times during the wet season and once during the dry season every year.
 - Priority B: A minimum of once during the wet season and once during the dry season every year.

Priority C: A minimum of once per year.

In addition to the schedule above, between February 1, 2002 and July 1, 2003, Permittees shall ensure that any catch basin that is at least 40% full of trash and/or debris shall be cleaned out. After July 1, 2003, Permittees shall ensure that any catch basin that is at least 25% full of trash and debris shall be cleaned out.

- (2) For any special event that can be reasonably expected to generate substantial quantities of trash and litter, include provisions that require for the proper management of trash and litter generated, as a condition of the special use permit issued for that event. At a minimum, the municipality who issues the permit for the special event shall arrange for either temporary screens to be placed on catch basins or for catch basins in that area to be cleaned out subsequent to the event and prior to any rain event.
 - (3) Place trash receptacles at all transit stops within its jurisdiction that have shelters no later than August 1, 2002, and at all other transit stops within its jurisdiction no later than February 3, 2003. All trash receptacles shall be maintained as necessary.
- d) Each Permittee shall inspect the legibility of the catch basin stencil or label nearest the inlet. Catch basins with illegible stencils shall be recorded and re-stenciled or re-labeled within 180 days of inspection.
- e) Each Permittee shall implement BMPs for Storm Drain Maintenance that include:
- (1) A program to visually monitor Permittee-owned open channels and other drainage structures for debris at least annually and identify and prioritize problem areas of illicit discharge for regular inspection;
 - (2) A review of current maintenance activities to assure that appropriate storm water BMPs are being utilized to protect water quality;
 - (3) Removal of trash and debris from open channel storm drains shall occur a minimum of once per year before the storm season;
 - (4) Minimize the discharge of contaminants during MS4 maintenance and clean outs; and
 - (5) Proper disposal of material removed.

6. Streets and Roads Maintenance

- a) Each Permittee shall designate streets and/or street segments within its jurisdiction as one of the following:
- Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris.
- Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris.
- Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris.
- b) Each Permittee shall perform street sweeping of curbed streets according to the following schedule:
- Priority A: These streets and/or street segments shall be swept at least two times per month.
- Priority B: Each Permittee shall ensure that each street and/or street segments is swept at least once per month.
- Priority C: These streets and/or street segments shall be swept as necessary but in no case less than once per year.
- c) Each Permittee shall require that:
- (1) Sawcutting wastes be recovered and disposed of properly and that in no case shall waste be left on a roadway or allowed to enter the storm drain;
 - (2) Concrete and other street and road maintenance materials and wastes shall be managed to prevent discharge to the MS4; and
 - (3) The washout of concrete trucks and chutes shall only occur in designated areas and never discharged to storm drains, open ditches, streets, or catch basins.
- d) Each Permittee shall, no later than August 1, 2002, train their employees in targeted positions (whose interactions, jobs, and activities affect storm water quality) regarding the requirements of the storm water management program to:
- (1) Promote a clear understanding of the potential for maintenance activities to pollute storm water; and
 - (2) Identify and select appropriate BMPs.

For Permittees with a population of 250,000 or more (2000 U.S. Census) training shall be completed no later than February 1, 2003.

7. Parking Facilities Management

Permittee-owned parking lots exposed to storm water shall be kept clear of debris and excessive oil buildup and cleaned no less than 2 times per month and/or inspected no less than 2 times per month to determine if cleaning is necessary. In no case shall a Permittee-owned parking lot be cleaned less than once a month.

8. Public Industrial Activities Management

Each Permittee shall, for any municipal activity considered a discharge of storm water associated with industrial activity, obtain separate coverage under the GIASP except that a municipality under 100,000 in population (1990 U.S. Census) need not file the Notice Of Intent to be covered by said permit until March 10, 2003 (with the exception of power plants, airports, and uncontrolled sanitary landfills).

9. Emergency Procedures

Each Permittee shall repair essential public services and infrastructure in a manner to minimize environmental damage in emergency situations such as: earthquakes; fires; floods; landslides; or windstorms. BMPs shall be implemented to the extent that measures do not compromise public health and safety. After initial emergency response or emergency repair activities have been completed, each Permittee shall implement BMPs and programs as required under this Order.

10. Treatment Feasibility Study

The Permittees in cooperation with the County Sanitation Districts of Los Angeles County shall conduct a study to investigate the possible diversion of dry weather discharges or the use of alternative Treatment Control BMPs to treat flows from their jurisdiction which may impact public health and safety and/or the environment. The Permittees shall collectively review their individual prioritized lists and create a watershed based priority list of drains for potential diversion or treatment and submit the priority listing to the Regional Board Executive Officer, no later than July 1, 2003.

G. Illicit Connections and Illicit Discharges Elimination Program

Permittees shall eliminate all illicit connections and illicit discharges to the storm drain system, and shall document, track, and report all such cases in accordance

with the elements and performance measures specified in the following subsections.

1. General

- a) Implementation: Each Permittee must develop an Implementation Program which specifies how each Permittee is implementing revisions to the IC/ID Program of the SQMP. This Implementation Program must be documented, and available for review and approval by the Regional Board Executive Officer, upon request.
- b) Tracking: All Permittees shall, no later than February 3, 2003, develop and maintain a listing of all permitted connections to their storm drain system. All Permittees shall map at a scale and in a format specified by the Principal Permittee all illicit connections and discharges on their baseline maps, and shall transmit this information to the Principal Permittee. No later than February 3, 2003, the Principal Permittee shall use this information as well as results of baseline and priority screening for illicit connections (as set forth in subsection 2 below) to start an annual evaluation of patterns and trends of illicit connections and illicit discharges, with the objectives of identifying priority areas for elimination of illicit connections and illicit discharges.
- c) Training: All Permittees shall train all targeted employees who are responsible for identification, investigation, termination, cleanup, and reporting of illicit connections and discharges. For Permittees with a population of less than 250,000 (2000 U.S. Census), training shall be completed no later than August 1, 2002. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003. Furthermore, all Permittees shall conduct refresher training on an annual basis thereafter.

2. Illicit Connections

a) Screening for Illicit Connections

- (1) Field Screening: All Permittees shall field Screen the storm drain system for illicit connections in accordance with the following schedule:

- (i) Open channels: No later than February 3, 2003;
- (ii) Underground pipes in priority areas: No later than February 1, 2005; and
- (iii) Underground pipes with a diameter of 36 inches or greater: No later than December 12, 2006.

Permittees shall report, to the Principal Permittee, on the location and length of open channels or underground pipes that have been Screened *vis a vis* the entire storm drain

network, and on the status of suspected, confirmed, and terminated illicit connections. Permittees shall maintain a list containing all permitted connections and the status of connections under investigation for possible illicit connection.

- (2) Permit Screening: No later than December 12, 2006, Permittees shall complete a review of all permitted connections to the storm drain system, to confirm compliance with Part 1 (Discharge Prohibition).

b) Response to Illicit Connections

- (1) Investigation: Upon discovery or upon receiving a report of a suspected illicit connection, Permittees shall initiate an investigation within 21 days, to determine the source of the connection, the nature and volume of discharge through the connection, and the responsible party for the connection.
- (2) Termination: Upon confirmation of the illicit nature of a storm drain connection, Permittees shall ensure termination of the connection within 180 days, using enforcement authority as needed.

3. Illicit Discharges

- a) Abatement and Cleanup: Permittees shall respond, within one business day of discovery or a report of a suspected illicit discharge, with activities to abate, contain, and clean up all illicit discharges, including hazardous substances.
- b) Investigation: Permittees shall investigate illicit discharges as soon as practicable (during or immediately following containment and cleanup activities), and shall take enforcement action as appropriate.

Part 5. DEFINITIONS

The following are definitions for terms applicable to this Order:

"Adverse Impact" means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants.

"Anti-degradation policies" means the *Statement of Policy with Respect to Maintaining High Quality Water in California* (State Board Resolution No. 68-16) which protects surface and ground waters from degradation. In particular, this policy protects waterbodies where existing quality is higher than that necessary for the protection of beneficial uses including the protection of fish and wildlife propagation and recreation on and in the water.

"Applicable Standards and Limitations" means all State, interstate, and federal standards and limitations to which a "discharge" or a related activity is subject under the CWA, including

"effluent limitations, "water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," and pretreatment standards under sections 301, 302, 303, 304, 306, 307, 308, 403 and 404 of CWA.

"Areas of Special Biological Significance (ASBS)" means all those areas of this state as ASBS, listed specifically within the California Ocean Plan or so designated by the State Board which, among other areas, includes the area from Mugu Lagoon to Latigo Point: Oceanwater within a line originating from Laguna Point at 34° 5' 40" north, 119° 6'30" west, thence southeasterly following the mean high tideline to a point at Latigo Point defined by the intersection of the meanhigh tide line and a line extending due south of Benchmark 24; thence due south to a distance of 1000 feet offshore or to the 100 foot isobath, whichever distance is greater; thence northwesterly following the 100 foot isobath or maintaining a 1,000-foot distance from shore, whichever maintains the greater distance from shore, to a point lying due south of Laguna Point, thence due north to Laguna Point.

"Authorized Discharge" means any discharge that is authorized pursuant to an NPDES permit or meets the conditions set forth in this Order.

"Automotive Service Facilities" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 5511, 7532-7534, or 7536-7539. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to storm water.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Board on June 13, 1994 and subsequent amendments.

"Beneficial Uses" means the existing or potential uses of receiving waters in the permit area as designated by the Regional Board in the Basin Plan.

"Best Management Practices (BMPs)" means methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and nonstructural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

"Commercial Development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

"Construction" means constructing, clearing, grading, or excavation that results in soil disturbance. Construction includes structure teardown. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; emergency construction activities required to immediately protect public health and safety; interior remodeling with no outside exposure of construction material or construction waste to storm water; mechanical permit work; or sign permit work.

"Control" means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

"Dechlorinated/Debrominated Swimming Pool Discharge" means swimming pool discharges which have no measurable chlorine or bromine and do not contain any detergents, wastes, or additional chemicals not typically found in swimming pool water. The term does not include swimming pool filter backwash.

"Development" means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the Director of a municipality and Person(s) designated by and under the Director's instruction and supervision.

"Discharge" means when used without qualification the "discharge of a pollutant."

"Discharging Directly" means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

"Discharge of a Pollutant" means: any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or, any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Environmentally Sensitive Areas (ESAs)" means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (*Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976)* and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the

Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from certain industrial activities under certain conditions.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

"Illicit Connection" means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit Discharge" means any discharge to the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes all non storm-water discharges except discharges pursuant to an NPDES permit, discharges that are identified in Part 1, "Discharge Prohibitions" of this order, and discharges authorized by the Regional Board Executive Officer.

"Illicit Disposal" means any disposal, either intentionally or unintentionally, of material(s) or waste(s) that can pollute storm water.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by the Standard Industrial Classifications (SIC). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Infiltration" means the downward entry of water into the surface of the soil.

"Inspection" means entry and the conduct of an on-site review of a facility and its operations, at reasonable times, to determine compliance with specific municipal or other legal requirements. The steps involved in performing an inspection, include, but are not limited to:

1. Pre-inspection documentation research.;
2. Request for entry;
3. Interview of facility personnel;
4. Facility walk-through.
5. Visual observation of the condition of facility premises;
6. Examination and copying of records as required;
7. Sample collection (if necessary or required);

8. Exit conference (to discuss preliminary evaluation); and,
9. Report preparation, and if appropriate, recommendations for coming into compliance.

In the case of restaurants, a Permittee may conduct an inspection from the curbside, provided that such "curbside" inspection provides the Permittee with adequate information to determine an operator's compliance with BMPs that must be implemented per requirements of this Order, Regional Board Resolution 98-08, County and municipal ordinances, and the SQMP.

"Large Municipal Separate Storm Sewer System (MS4)" means all MS4s that serve a population greater than 250,000 (1990 Census) as defined in 40 CFR 122.26 (b)(4). The Regional Board designated Los Angeles County as a large MS4 in 1990, based on: (i) the U.S. Census Bureau 1990 population count of 8.9 million, and (ii) the interconnectivity of the MS4s in the incorporated and unincorporated areas within the County.

"Local SWPPP" means the Storm Water Pollution Prevention Plan required by the local agency for a project that disturbs one or more acres of land.

"Maximum Extent Practicable (MEP)" means the standard for implementation of storm water management programs to reduce pollutants in storm water. CWA § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. See also State Board Order WQ 2000-11 at page 20.

"Method Detection Limit (MDL)" means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B.

"Minimum Level (ML)" means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

"Municipal Separate Storm Sewer System (MS4)" means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, alleys, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a State, city, county, town or other public body, that is designed or used for collecting or conveying storm water, which is not a combined sewer, and which is not part of a publicly owned treatment works, and which discharges to Waters of the United States.

"National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405. The term includes an "approved program."

"Natural Drainage Systems" means unlined or unimproved (not engineered) creeks, streams, rivers or similar waterways.

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

“Non-Storm Water Discharge” means any discharge to a storm drain that is not composed entirely of storm water.

"Nuisance" means anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

“Parking Lot” means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Permittee(s)" means Co-Permittees and any agency named in this Order as being responsible for permit conditions within its jurisdiction. Permittees to this Order include the Los Angeles County Flood Control District, Los Angeles County, and the cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Canada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier.

“Planning Priority Projects” means those projects that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective project. These types of projects include:

1. Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments)
2. A 100,000 or more square feet of impervious surface area industrial/commercial development (1 ac starting March 2003)
3. Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539)
4. Retail gasoline outlets
5. Restaurants (SIC 5812)
6. Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces

7. Redevelopment projects in subject categories that meet Redevelopment thresholds
8. Projects located in or directly adjacent to or discharging directly to an ESA, which meet thresholds; and
9. Those projects that require the implementation of a site-specific plan to mitigate post-development storm water for new development not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where the following project characteristics exist:
 - a) Vehicle or equipment fueling areas;
 - b) Vehicle or equipment maintenance areas, including washing and repair;
 - c) Commercial or industrial waste handling or storage;
 - d) Outdoor handling or storage of hazardous materials;
 - e) Outdoor manufacturing areas;
 - f) Outdoor food handling or processing;
 - g) Outdoor animal care, confinement, or slaughter; or
 - h) Outdoor horticulture activities.

"Pollutants" means those "pollutants" defined in CWA §502(6) (33.U.S.C. §1362(6)), and incorporated by reference into California Water Code §13373.

"Potable Water Distribution Systems Releases" means sources of flows from drinking water storage, supply and distribution systems including flows from system failures, pressure releases, system maintenance, distribution line testing, fire hydrant flow testing; and flushing and dewatering of pipes, reservoirs, vaults, and minor non-invasive well maintenance activities not involving chemical addition(s). It does not include wastewater discharges from activities that occur at wellheads, such as well construction, well development (i.e., aquifer pumping tests, well purging, etc.), or major well maintenance.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065).

"Rain Event" means any rain event greater than 0.1 inch in 24 hours except where specifically stated otherwise.

"Rare, Threatened, or Endangered Species (RARE)" means a beneficial use for waterbodies in the Los Angeles Region, as designated in the Basin Plan (Table 2-1), that supports habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

"Receiving Waters" means all surface water bodies in the Los Angeles Region that are identified in the Basin Plan.

"Redevelopment" means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint;

addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

“Regional Administrator” means the Regional Administrator of the Regional Office of the USEPA or the authorized representative of the Regional Administrator.

“Restaurant” means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

“Retail Gasoline Outlet” means any facility engaged in selling gasoline and lubricating oils.

“Runoff” means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

“Screening” means using proactive methods to identify illicit connections through a continuously narrowing process. The methods may include: performing baseline monitoring of open channels, conducting special investigations using a prioritization approach, analyzing maintenance records for catch basin and storm drain cleaning and operation, and verifying all permitted connections into the storm drains. Special investigation techniques may include: dye testing, visual inspection, smoke testing, flow monitoring, infrared, aerial and thermal photography, and remote control camera operation.

“Sidewalk Rinsing” means pressure washing of paved pedestrian walkways with average water usage of 0.006 gallons per square foot, with no cleaning agents, and properly disposing of all debris collected, as authorized under Regional Board Resolution No. 98-08.

“Significant Ecological Area (SEA)” means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.¹

Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.

¹ The 61 existing SEAs represent the findings of a study that was completed in 1976 by England and Nelson, Environmental Consultants, as amended through the adoption of a revised Los Angeles County General Plan in 1980. The results of an update study to evaluate existing SEAs within unincorporated Los Angeles County is currently being proposed to the Los Angeles County Planning Commission (*Los Angeles County Significant Ecological Area Update Study 2000, Background Report*, PCR Services Corporation). The *Update Study 2000*, which contains existing and proposed SEA boundaries, can be downloaded from the Los Angeles County Department of Planning website at http://planning.co.la.ca.us/drp_revw.html#SEA

4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas.²

"Significant Natural Area (SNA)" means an area defined by the California Department of Fish and Game (DFG), Significant Natural Areas Program, as an area that contains an important example of California's biological diversity. The most current SNA maps, reports, and descriptions can be downloaded from the DFG website at <ftp://maphost.dfg.ca.gov/outgoing/whdab/sna/>. These areas are identified using the following biological criteria only, irrespective of any administrative or jurisdictional considerations:

1. Areas supporting extremely rare species or habitats.
2. Areas supporting associations or concentrations of rare species or habitats.
3. Areas exhibiting the best examples of rare species and habitats in the state.

"Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Source Control BMP" means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

"SQMP" means the Los Angeles Countywide Stormwater Quality Management Program.

"State Storm Water Pollution Prevention Plan (State SWPPP)" means a plan, as required by a State General Permit, identifying potential pollutant sources and describing the design, placement and implementation of BMPs, to effectively prevent non-stormwater Discharges and reduce Pollutants in Stormwater Discharges during activities covered by the General Permit.

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Discharge Associated with Industrial Activity" means industrial discharge as defined in 40 CFR 122.26(b)(14)

"Stormwater Quality Management Program" means the Los Angeles Countywide Stormwater Quality Management Program, which includes descriptions of programs, collectively developed by the Permittees in accordance with provisions of the NPDES Permit, to comply with applicable federal and state law, as the same is amended from time to time.

² These criteria from the 1976 study have been modified in the *Update Study 2000*.

“Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

"SUSMP" means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address conditions and requirements of new development.

“Total Maximum Daily Load (TMDL)” means the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background.

"Toxicity Identification Evaluation (TIE)" means a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

"Toxicity Reduction Evaluation (TRE)" means a study conducted in a step-wise process to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

“Treatment” means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media absorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

“Treatment Control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

"USEPA Phase I Facilities" means facilities in specified industrial categories that are required to obtain an NPDES permit for storm water discharges, as required by 40 CFR 122.26(c). These categories include:

- i. facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR N)
- ii. manufacturing facilities
- iii. oil and gas/mining facilities
- iv. hazardous waste treatment, storage, or disposal facilities
- v. landfills, land application sites, and open dumps
- vi. recycling facilities
- vii. steam electric power generating facilities
- viii. transportation facilities
- ix. sewage of wastewater treatment works
- x. light manufacturing facilities

"Vehicle Maintenance/Material Storage Facilities/Corporation Yards" means any Permittee owned or operated facility or portion thereof that:

- i. Conducts industrial activity, operates equipment, handles materials, and provides services similar to Federal Phase I facilities;
- ii. Performs fleet vehicle service/maintenance on ten or more vehicles per day including repair, maintenance, washing, and fueling;

- iii. Performs maintenance and/or repair of heavy industrial machinery/equipment ; and
- iv. Stores chemicals, raw materials, or waste materials in quantities that require a hazardous materials business plan or a Spill Prevention, Control , and Counter-measures (SPCC) plan.

“Water Quality Standards and Water Quality Objectives” means water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans. Such plans are used by the Regional Board to regulate all discharges, including storm water discharges.

“Waters of the State” means any surface water or groundwater, including saline waters, within boundaries of the state.

“Waters of the United States” or “Waters of the U.S.” means:

- a. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- b. All interstate waters, including interstate “wetlands”;
- c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
 - 1. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - 2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - 3. Which are used or could be used for industrial purposes by industries in interstate commerce;
- d. All impoundments of waters otherwise defined as waters of the United States under this definition;
- e. Tributaries of waters identified in paragraphs (a) through (d) of this definition;
- f. The territorial sea; and
- g. “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in paragraph (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.22(m), which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to man-made bodies of water, which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with USEPA.

“Wet Season” means the calendar period beginning October 1 through April 15.

Part 6. STANDARD PROVISIONS

A. Standard Requirements

1. Each Permittee shall comply with all provisions and requirements of this permit.
2. Should a Permittee discover a failure to submit any relevant facts or that it submitted incorrect information in a report, it shall promptly submit the missing or correct information.
3. Each Permittee shall report all instances of non-compliance not otherwise reported at the time monitoring reports are submitted.
4. This Order includes the attached Monitoring and Reporting Program, and SUSMP(Regional Board Resolution No. R00-02), which are a part of the permit and must be complied with in the same manner as with the rest of the requirements in the permit.

B. Regional Board Review

Any formal determination or approval made by the Regional Board Executive Officer pursuant to the provisions of this Order may be reviewed by the Regional Board. A Permittee(s) or a member of the public may request such review upon petition within 30 days of the effective date of the notification of such decision to the Permittee(s) and interested parties on file at the Regional Board.

C. Public Review

1. All documents submitted to the Regional Board in compliance with the terms and conditions of this Order shall be made available to members of the public pursuant to the Freedom of Information Act (5 U.S.C. § 552 (as amended) and the Public Records Act (Cal. Government Code § 6250 *et seq.*).
2. All documents submitted to the Regional Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.

D. Duty to Comply

1. Each Permittee must comply with all of the terms, requirements, and conditions of this Order. Any violation of this order constitutes a violation of the Clean Water Act, its regulations and the California Water Code, and is grounds for enforcement action, Order termination, Order revocation and reissuance, denial of an application for reissuance; or a combination thereof [40 CFR 122.41(a), CWC § 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350].
2. A copy of these waste discharge specifications shall be maintained by each Permittee so as to be available during normal business hours to Permittee employees and members of the public.

3. Any discharge of wastes at any point(s) other than specifically described in this Order is prohibited, and constitutes a violation of the Order.

E. Duty to Mitigate [40 CFR 122.41 (d)]

Each Permittee shall take all reasonable steps to minimize or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Inspection and Entry [40 CFR 122.41(i), CWC § 13267]

The Regional Board, USEPA, and other authorized representatives shall be allowed:

1. Entry upon premises where a regulated facility is located or conducted, or where records are kept under conditions of this Order;
2. Access to copy any records, at reasonable times, that are kept under the conditions of this Order;
3. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and,
4. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with this Order, or as otherwise authorized by the CWA and the CWC.

G. Proper Operation and Maintenance [40 CFR 122.41 (e), CWC § 13263(f)]

The Permittees shall at all times properly operate and maintain all facilities and systems of treatment (and related appurtenances) that are installed or used by the Permittees to achieve compliance with this Order. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar system that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order.

H. Signatory Requirements [40 CFR 122.41(k) & 122.22]

Except as otherwise provided in this Order, all applications, reports, or information submitted to the Regional Board shall be signed by the Director of Public Works, City Engineer, or authorized designee and certified as set forth in 40 CFR 122.22.

I. Reopener and Modification [40 CFR 122.41(f) & 122.62]

1. This Order may only be modified, revoked, or reissued, prior to the expiration date, by the Regional Board, in accordance with the procedural requirements of the CWC and CCR Title 23 for the issuance of waste

discharge requirements, 40 CFR 122.62, and upon prior notice and hearing, to:

- a) Address changed conditions identified in the required reports or other sources deemed significant by the Regional Board;
 - b) Incorporate applicable requirements or statewide water quality control plans adopted by the State Board or amendments to the Basin Plan;
 - c) Comply with any applicable requirements, guidelines, and/or regulations issued or approved pursuant to CWA Section 402(p); and/or,
 - d) Consider any other federal, or state laws or regulations that became effective after adoption of this Order.
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
- a) Violation of any term or condition contained in this Order;
 - b) Obtaining this Order by misrepresentation, or failure to disclose all relevant facts; or,
 - c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
3. The filing of a request by the Principal Permittee or Permittees for a modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.
4. This Order may be modified to make corrections or allowances for changes in the permitted activity listed in this section, following the procedures at 40 CFR 122.63, if processed as a minor modification. Minor modifications may only:
- a) Correct typographical errors, or
 - b) Require more frequent monitoring or reporting by the Permittee.

J. Severability

The provisions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

K. Duty to Provide Information [40 CFR 122.41(h)]

The Permittees shall furnish, within a reasonable time, any information the Regional Board or USEPA may request to determine whether cause exists for

modifying, revoking and reissuing, or terminating this Order. The Permittees shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

L. Twenty-four Hour Reporting [40 CFR 122.41(l)(6)]³

1. The Permittees shall report to the Regional Board any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time any Permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
2. The Regional Board may waive the required written report on a case-by-case basis.

M. Bypass [40 CFR 122.41(m)]⁴

Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Board may take enforcement action against Permittees for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventive maintenance;
3. The Permittee submitted a notice at least ten days in advance of the need for a bypass to the Regional Board; or,
4. Permittees may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to

³ This provision applies to incidents where effluent limitations (numerical or narrative) as provided in this Order or in the Los Angeles County SQMP are exceeded, and which endanger public health or the environment.

⁴ This provision applies to the operation and maintenance of storm water controls and BMPs as provided in this Order or in the SQMP.

assure efficient operation. In such a case, the above bypass conditions are not applicable. The Permittee shall submit notice of an unanticipated bypass as required.

N. Upset [40 CFR 122.41(n)]⁵

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

1. A Permittee that wishes to establish the affirmative defense of an upset in an action brought for non compliance shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a) An upset occurred and that the Permittee can identify the cause(s) of the upset;
 - b) The permitted facility was being properly operated by the time of the upset;
 - c) The Permittee submitted notice of the upset as required; and,
 - d) The Permittee complied with any remedial measures required.
2. No determination made before an action for noncompliance, such as during administrative review of claims that non-compliance was caused by an upset, is final administrative action subject to judicial review.
3. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Property Rights [40 CFR 122.41(g)]

This Order does not convey any property rights of any sort, or any exclusive privilege.

P. Enforcement

1. Violation of any of the provisions of the NPDES permit or any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalties may be applied for each kind of violation. The CWA provides the following:
 - a) Criminal Penalties for:

⁵ *Supra*. See footnote number 3.

(1) Negligent Violations:

The CWA provides that any person who negligently violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than \$2,500 nor more than \$25,000 per day for each violation, or by imprisonment for not more than 1 year, or both.

(2) Knowing Violations:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

(3) Knowing Endangerment:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 307, 308, 318, or 405 and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than \$250,000, or by imprisonment for not more than 15 years, or both.

(4) False Statement:

The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or by both. (See CWA § 309(c)(4))

b) Civil Penalties

The CWA provides that any person who violates a permit condition implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a civil penalty not to exceed \$27,500 per day for each violation.

2. The CWC provides that any person who violates a waste discharge requirement provision of the CWC is subject to civil penalties of up to \$5,000 per day, \$10,000 per day, or \$25,000 per day of violation; or when the violation involves the discharge of pollutants, is subject to civil penalties of up to \$10 per gallon per day or \$25 per gallon per day of violation; or some combination thereof, depending on the violation or combination of violations.

Q. Need to Halt or Reduce Activity not a Defense [40 CFR 122.41(c)]

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

R. Rescission

Regional Board Order No. 96-054 is hereby rescinded.

S. Expiration

This Order expires on December 12, 2006. The Permittees must submit a Report of Waste Discharges and a proposed Storm Water Quality Management Program in accordance with CCR Title 23 as application for reissuance of waste discharge requirements no later than June 12, 2006.

I, Dennis A. Dickerson, Regional Board Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 13, 2001.



Dennis A. Dickerson
Executive Officer

ATTACHMENT

23

PERMIT FOR THE DISTRICT OF COLUMBIA
MUNICIPAL SEPARATE STORM SEWER SYSTEM

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- 9. PERMIT DEFINITIONS

1. **DISCHARGES AUTHORIZED UNDER THIS PERMIT**

1.1 Permit Area

This permit covers all areas within the jurisdictional boundary of the District of Columbia served by, or otherwise contributing to discharges from, the Municipal Separate Storm Sewer System (MS4) owned or operated by the District of Columbia. This permit also covers all areas served by or contributing to discharges from MS4s owned or operated by other entities within the jurisdictional boundaries of the District of Columbia unless those areas have separate NPDES MS4 permit coverage or are specifically excluded herein from authorization under the District's stormwater program. Hereinafter these areas collectively are referred to as "MS4 Permit Area".

1.2 Authorized Discharges

This permit authorizes all stormwater point source discharges to waters of the United States from the District of Columbia's MS4 that comply with the requirements of this permit. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate NPDES permits.

This permit authorizes the following non-stormwater discharges to the MS4 when appropriate stormwater activities and controls required through this permit have been applied and which are: (1) discharges resulting from clear water flows, roof drainage, dechlorinated water line flushing, landscape irrigation, ornamental fountains, diverted stream flows, rising ground waters, uncontaminated ground water infiltration to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation waters, springs, footing drains, lawn watering, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, wash water, fire fighting activities, and similar types of activities; and (2) which are managed so that water quality is not further impaired and that the requirements of the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and EPA regulations are met.

1.3 Limitations to Coverage

1.3.1 Non-stormwater Discharges

The permittee, as defined herein, shall effectively prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with an NPDES permit.

1.3.2 Waivers and Exemptions

This permit does not authorize the discharge of any pollutant from the MS4 which arises from or is based on any existing waivers and exemptions that may otherwise apply and are not consistent with the Federal Clean Water Act and other pertinent guidance, policies, and regulations. This narrative prohibition on the applicability of such waivers and exemptions extends to any activity that would otherwise be authorized under District law, regulations or

ordinance but which impedes the reduction or control of pollutants through the use of stormwater control measures and/or prevents compliance with the narrative /numeric effluent limits of this permit. Any such discharge not otherwise authorized may constitute a violation of this permit.

1.4 Discharge Limitations

The permittee must manage, implement and enforce a stormwater management program (SWMP) in accordance with the Clean Water Act and corresponding stormwater NPDES regulations, 40 C.F.R. Part 122, to meet the following requirements:

1.4.1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the MS4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS);

1.4.2. Attain applicable wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 122.44(k)(2) and (3); and

1.4.3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with the provisions contained in Parts 2 through 8 of this permit, including milestones and final dates for attainment of applicable WLAs, shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term.

2. **LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINISTRATION**

2.1 Legal Authority

2.1.1 The permittee shall use its existing legal authority to control discharges to and from the Municipal Separate Storm Sewer System in order to prevent or reduce the discharge of pollutants to achieve water quality objectives, including but not limited to applicable water quality standards. To the extent deficiencies can be addressed through regulation or other Executive Branch action, the permittee shall remedy such deficiencies within 120 days. Deficiencies that can only be addressed through legislative action shall be remedied within 2 years of the effective date of this permit, except where otherwise stipulated, in accordance with the District's legislative process. Any changes to or deficiencies in the legal authority shall be explained in each Annual Report.

2.1.2 No later than 18 months following the effective date of this permit, the permittee shall update and implement Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution) ("updated DC Stormwater Regulations"), to address the control of stormwater throughout the MS4 Permit Area. Such regulations shall be consistent with this

permit, and shall be at least as protective of water quality as the federal Clean Water Act and its implementing regulations require.

2.1.3 The permittee shall ensure that the above legal authority in no way restricts its ability to enter into inter-jurisdictional agreements with other District agencies and/or other jurisdictions affected through this permit.

2.1.4 Review and revise, where applicable, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the following standards: (1) standards resulting from issuance of District stormwater regulations required by Section 2.1, paragraph 1 herein; and (2) performance standards required by this permit.

2.2 Fiscal Resources

The permittee, including all agencies and departments of the District as specified in section 2.3 below, shall provide adequate finances, staff, equipment and support capabilities to implement the existing Stormwater Management Program (SWMP) and the provisions of this permit. For the core program the permittee shall provide a dedicated funding source. Each annual report under Part 6 of this permit shall include a demonstration of adequate fiscal capacity to meet the requirements of this permit.

2.3 Stormwater Management Program Administration/Permittee Responsibilities

2.3.1 The Government of the District of Columbia is the permittee, and all activities of all agencies, departments, offices and authorities of the District must comply with the requirements of this permit. The permittee has designated the District Department of the Environment (DDOE) as the agency responsible for managing the MS4 Stormwater Management Program and all activities necessary to comply with the requirements of this permit and the Comprehensive Stormwater Management Enhancement Amendment Act of 2008 by coordinating and facilitating a collaborative effort among other city agencies and departments including but not limited to departments designated as “Stormwater Agencies” by the Comprehensive Stormwater Management Enhancement Amendment Act of 2008:

District Department of Transportation (DDOT);
Department of Public Works (DPW);
Office of Planning (OP);
Office of Public Education Facilities Modernization (OPEFM);
Department of Real Estate Services (DRES);
Department of Parks and Recreation; and
DC Water and Sewer Authority (also known as and hereinafter referred to as DC Water).

Each named entity is responsible for complying with those elements of the permit within its jurisdictional scope and authorities.

2.3.2 DDOE shall coordinate, and all agencies, offices, departments and authorities shall implement provisions of the existing MS4 Task Force Memorandum of Understanding (MOU) dated 2000, updated matrix of responsibilities (January 2008), and any subsequent updates; the MOU between DDOE and DC Water (2012) and any subsequent updates; and other institutional agreements to coordinate compliance activities among agency partners to implement the provisions of this permit. DDOE's major responsibilities under these MOUs and institutional agreements shall include:

1. Convening regular meetings and communication with MS4 Task Force agencies and other committees established to implement this permit to budget, assign and implement projects, and monitor, inspect and enforce all activities required by the MS4 permit.
2. Providing technical and administrative support for the MS4 Task Force and other committees established to implement this permit
3. Evaluating, assessing, and synthesizing results of the monitoring and assessment programs and the effectiveness of the implementation of management practices and coordinating necessary adjustments to the stormwater management program in order to ensure compliance.
4. Coordinating the completion and submission of all deliverables required by the MS4 Permit.
5. Projecting revenue needs to meet MS4 Permit requirements, overseeing the District's stormwater fees to fulfill revenue needs, and coordinating with DC Water to ensure the District's stormwater fee is collected.
6. Making available to the public and other interested and affected parties, the opportunity to comment on the MS4 stormwater management program.

2.3.3 Within 180 days of permit issuance, the permittee shall complete an assessment of additional governmental agencies and departments, non-governmental organizations, watershed groups or other community organizations in the District and adjacent states to partner with to administer required elements of the permit. Intra- and inter-agency agreements between relevant governmental and nongovernmental organizations shall be established to ensure successful coordination and implementation of stormwater management activities in accordance with the requirements of this permit. Additional government and nongovernmental organizations and programs to consider include; land use planning, brownfields redevelopment, fire department, building and safety, public health, parks and recreation, and federal departments and agencies, including but not limited to, the National Park Service, Department of Agriculture, Department of Defense, and General Services Administration, responsible for facilities in the District.

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

The permittee shall continue to implement, assess and upgrade all of the controls,

procedures and management practices, described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements. Updates to the plan shall be consistent with all compliance deadlines in this permit. A current plan shall be posted on the permittee's website at an easily accessible location at all times.

New Stormwater Management Program strategies, elements, initiatives and plans required to be submitted to EPA for review and approval are included in Table 1.

TABLE 1
Elements Requiring EPA Review and/or Approval

Element	Submittal Date (from effective date of this permit)
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.5)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

No later than 3 years from the issuance date of this permit the permittee shall public notice a fully updated Plan including all of the elements required in this permit. No later than 4 years from the issuance date of this permit the permittee shall submit to EPA the fully updated plan for review and approval, as part of the application for permit renewal.

The measures required herein are terms of this permit. These permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.

TABLE 2
Legal Authority for Selected Required Program Stormwater Elements

Required Program Application Element	Regulatory References
Adequate Legal Authority	40 C.F.R. § 122.26(d)(2)(I)(C)-(F)

Green technology stormwater management practices, which incorporate technologies and practices across District activities.	Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution)
Existing Structural and Source Controls	40 C.F.R. § 122.26(d)(2)(iv)(A)(1)
Roadways	40 C.F.R. § 122.26(d)(2)(iv)(A)(3)
Pesticides, Herbicides, and Fertilizers Application	40 C.F.R. § 122.26(d)(2)(iv)(A)(6)
Municipal Waste Sites	40 C.F.R. § 122.26(d)(2)(iv)(A)(5)
Spill Prevention and Response	40 C.F.R. § 122.26(d)(2)(iv)(B)(4)
Infiltration of Seepage	40 C.F.R. § 122.26(d)(2)(iv)(B)(7)
Stormwater Management Program for Commercial and Residential Areas	40 C.F.R. § 122.26(d)(2)(iv)(A)
Manage Critical Source Areas	40 C.F.R. § 122.26(d)(iii)(B)(6)
Stormwater Management for Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)
Industrial and High Risk Runoff	40 C.F.R. § 122.26(d)(2)(iv)(C), (iv)(A)(5)
Identify Priority Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)(1)
Illicit Discharges and Improper Disposal	40 C.F.R. § 122.26(d)(2)(iv)(B)(1)-(5), (iv)(B)(7)
Flood Control Projects	40 C.F.R. § 122.26(d)(2)(iv)(A)(4)
Public Education and Participation	40 C.F.R. § 122.26(d)(2)(iv)(A)(6), (iv)(B)(5), (iv)(B)(6)

Monitoring and Assessment and Reporting	40 C.F.R. § 122.26(d)(2)(iv)(D)(v)
Monitoring Program	40 C.F.R. § 122.26(d)(2)(iv)(B)(2), (iii), iv(A), (iv)(C)(2)
Characterization Data	40 C.F.R. § 122.26(d)(2)(iii)(B)-(D), 40 C.F.R. § 122.21(g)(7)
Reporting	40 C.F.R. § 122.41(l)

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

4.1 Standard for Long-Term Stormwater Management

The permittee shall continue to develop, implement, and enforce a program in accordance with this permit and the permittee’s updated SWMP Plan that integrates stormwater management practices at the site, neighborhood and watershed levels that shall be designed to mimic pre-development site hydrology through the use of on-site stormwater retention measures (e.g., harvest and use, infiltration and evapotranspiration), through policies, regulations, ordinances and incentive programs

4.1.1 Standard for Stormwater Discharges from Development

No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement one or more enforceable mechanism(s) that will adopt and implement the following performance standard for all projects undertaking development that disturbs land greater than or equal to 5,000 square feet:

Require the design, construction and maintenance of stormwater controls to achieve on-site retention of 1.2” of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting and use for all development greater than or equal to 5,000 square feet.

The permittee may allow a portion of the 1.2” volume to be compensated for in a program consistent with the terms and requirements of Part 4.1.3.

4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking

By the end of this permit term the permittee must review and revise, as applicable, stormwater, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the retention performance standard required in

Section 4.1.1. The permittee must also establish/update and maintain a formal process for site plan reviews and a post-construction verification process (e.g., inspections, submittal of as-builts) to ensure that standards are appropriately implemented. The permittee must also track the on-site retention performance of each project subject to this regulatory requirement.

4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities

Within 18 months of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and comment an off-site mitigation and/or fee-in-lieu program to be utilized when projects will not meet stormwater management performance standard as defined in Section 4.1.1. The permittee has the option of implementing an off-site mitigation program, a fee-in-lieu program, or both. Any allowance for adjustments to the retention standard shall be defined in the permittee's regulations. The program shall include at a minimum:

1. Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
2. Specific criteria for determining when compliance with the performance standard requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
3. For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
4. The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

The program may also include incentives for achieving other important environmental objectives such as ongoing measurable carbon sequestration, energy savings, air quality reductions in green house gases, or other environmental benefits for which the program can develop methods for quantifying and documenting those outcomes. Controls implemented to achieve those outcomes are subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls.

District-owned transportation right-of-way projects are subject to a similarly stringent process for determining an alternate performance volume, but for the duration of this permit term need not conduct off-site mitigation or pay into a fee-in-lieu program to compensate for the difference.

4.1.4 Green Landscaping Incentives Program

No later than one year following permit issuance, the permittee shall develop an incentive program to increase the quantity and quality of planted areas in the District while allowing flexibility for developers and designers to meet development standards. The Incentive Program

shall use such methods as a scoring system to encourage green technology practices such as larger plants, permeable paving, green roofs, vegetated walls, preservation of existing trees, and layering of vegetation along streets and other areas visible to the public.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Within two years of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and approval a program that establishes performance metrics for retrofit projects. The permittee shall fully implement the program upon EPA approval. The starting point for the performance metrics shall be the standard in Section 4.1.1. Performance metrics may be established generally for all retrofit projects, or for categories of projects, e.g., roads, sidewalks, parking lots, campuses. Specific site conditions may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1, and a similar calculator or algorithm process may be used in conjunction with a specific site analysis.

4.1.5.2 The permittee, with facilitation assistance from EPA Region III, will also work with major Federal landholders, such as the General Services Administration and the Department of Defense, with the objective of identifying retrofit opportunities, documenting federal commitments, and tracking pollutant reductions from relevant federal actions.

4.1.5.3 For each retrofit project estimate the potential pollutant load and volume reductions achieved through the DC Retrofit program by major waterbody (Rock Creek, Potomac, Anacostia) for the following pollutants: Bacteria (E. coli), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash. These estimates shall be included in the annual report following implementation of the project.

4.1.5.4 The DC Retrofit Program shall implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way.

4.1.5.5 No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement an enforceable mechanism that will adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. The characteristics of these types of projects may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1.

4.1.5.6 The permittee shall ensure that every major renovation/rehabilitation project for District-owned properties within the inventory of DRES and OPEFM (e.g., schools and school administration buildings) includes on-site stormwater retention measures, including but not

limited to green roofs, stormwater harvest/reuse, and/or other practices that can achieve the retention performance standard.

4.1.6 Tree Canopy

4.1.6.1 No later than one year following issuance of this permit, the permittee shall develop and public notice a strategy to reduce the discharge of stormwater pollutants by expanding tree canopy throughout the city. The strategy shall identify locations throughout the District where tree plantings and expanded tree boxes are technically feasible and commit to specific schedules for implementation at locations throughout the District, with highest priority given to projects that offer the greatest stormwater retention potential. The strategy shall also include the necessary elements to achieve the requirements of Section 4.1.6.2.

4.1.6.2 The permittee shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40% by 2035. The annual total tree planting shall be calculated as a net increase, such that annual mortality is also included in the estimate. The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rate. Trees shall be planted in accordance with the Planting Specifications issued by the International Society of Arboriculture as appropriate to the site conditions.

4.1.6.3 The permittee shall annually document the total trees planted and make an annual estimate of the volume of stormwater that is being removed from the MS4 (and combined system, as relevant) in a typical year of rainfall as a result of the maturing tree canopy over the life of the MS4 permit. Also report annually on the status of achieving 40% canopy District-wide.

4.1.7 Green Roof Projects

4.1.7.1 Complete a structural assessment of all District properties maintained by DRES and slated for redevelopment to determine current roof conditions and the feasibility for green roof installation. These assessments shall be performed on an ongoing basis for all properties as they are considered for redevelopment. Based on the structural assessment and other factors, identify all District-owned properties where green roof projects are technically feasible and commit to specific schedules for implementing these projects. Highest priority shall be given to projects that offer the greatest stormwater capture potential.

4.1.7.2 The permittee shall install at a minimum 350,000 square feet of green roofs on District properties during the term of the permit (including schools and school administration buildings).

4.1.7.3 Document the square footage of green roof coverage in the District, whether publicly or privately owned, report any incentive programs implemented during the permit term, and estimate the volume of stormwater that is being removed from the MS4 (and combined

system, as relevant) in a typical year of rainfall as a result of the combined total green roof facilities in the District.

4.2 Operation and Maintenance of Stormwater Capture Practices

4.2.1 District Owned and Operated Practices.

Within two years of the effective date of this permit, develop and implement operation and maintenance protocols and guidance for District-owned and operated on-site retention practices (development and retrofits) to include maintenance needs, inspection frequencies, estimated maintenance frequencies, and a tracking system to document relevant information. Provide training to all relevant municipal employees and contractors, with regular refreshers, as necessary.

4.2.2 Non-District Owned and Operated Practices.

In conjunction with updating of relevant ordinances and policies, develop accountability mechanisms to ensure maintenance of stormwater control measures on non-District property. Those mechanisms may include combinations of deed restrictions, ordinances, maintenance agreements, or other policies deemed appropriate by the permittee. The permittee must also include a long-term verification process of O&M, which may include municipal inspections, 3rd party inspections, owner/operator certification on a frequency deemed appropriate by the permittee, and/or other mechanisms. The permittee must continue to maintain an electronic inventory of practices on private property to include this information.

4.2.3 Stormwater Management Guidebook and Training

4.2.3.1 No later than 18 months from the permit issuance date, the permittee shall finalize a Stormwater Management Guidebook to be available for wide-spread use by land use planners and developers. The Stormwater Management Guidebook shall provide regular updates, as applicable, in a format that facilitates such regular updates, and shall include objectives and specifications for integration of stormwater management technologies, including on site retention practices, in the areas of:

- a. Site Assessment.
- b. Site Planning and Layout.
- c. Vegetative Protection, Revegetation, and Maintenance.
- d. Techniques to Minimize Land Disturbance.
- e. Techniques to Implement Measures at Various Scales.
- f. Integrated Water Resources Management Practices.
- g. Designing to meet the required performance standard(s).
- h. Flow Modeling Guidance.
- i. Hydrologic Analysis.
- j. Construction Considerations.
- k. Operation and Maintenance

4.2.3.2 The permittee shall continue to provide key industry, regulatory, and other stakeholders with information regarding objectives and specifications of green infrastructure practices contained in the Stormwater Management Guidebook through a training program. The Stormwater Management training program will include at a minimum the following:

- a. Stormwater management/green technology practices targeted sessions and materials for builders, design professionals, regulators, resource agencies, and stakeholders.
- b. Materials and data from stormwater management/green technology practices pilot projects and demonstration projects including case studies.
- c. Design and construction methods for integration of stormwater management/green technology practices measures at various project scales.
- d. Guidance on performance and cost of various types of stormwater management/green technology practices measures in the District.

4.3 Management of for District Government Areas

Procedures to reduce the discharge of pollutants in stormwater runoff shall include, but not be limited to:

4.3.1 Sanitary Sewage System Maintenance Overflow and Spill Prevention Response

The permittee shall implement an effective response protocol for overflows of the sanitary sewer system into the MS4. The response protocol shall clearly identify agencies responsible and telephone numbers and e-mail for any contact and shall contain at a minimum, procedures for:

1. Investigating any complaints received within 24 hours of the incident report.
2. Responding within two hours to overflows for containment.
3. Notifying appropriate sewer and public health agencies within 24 hours when the sanitary sewer overflows to the MS4.
4. Notifying the public in a timely and effective manner when SSO discharges to the MS4 may adversely affect public health.

This provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4.

4.3.2 Public Construction Activities Management

The permittee shall implement and comply with the Development and Redevelopment and the Construction requirements in Part 4.6 of this permit at all permittee-owned or operated public construction projects.

The permittee shall obtain discharge authorization under the applicable EPA Construction General permit for construction activities and comply with provisions therein.

4.3.3 Vehicle Maintenance/Material Storage Facilities/ Municipal Operations.

The permittee shall implement stormwater pollution prevention measures at all permittee-owned, leased facilities and job sites including but not limited to vehicle/ equipment maintenance facilities, and material storage facilities.

For vehicle and equipment wash areas and municipal facilities constructed, redeveloped, or replaced, the permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4 by implementing any of the following measures at existing facilities with vehicle or equipment wash areas:

1. Self-contain, and haul off-site for disposal;
2. Equip with a clarifier; or
3. Equip with an alternative pre-treatment device.

4.3.4 Landscape and Recreational Facilities Management, Pesticide, Herbicide, Fertilizer and Landscape Irrigation

4.3.4.1 The permittee shall further reduce pollutants and pollutant discharges associated with the storage and application of pesticides, fertilizers, herbicides, the use of other toxic substances and landscape irrigation according to an integrated pest management program (IPM). The IPM shall be an ecosystem based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties, and use of low or no chemical and irrigation input landscapes, in accordance with the provisions of this permit, procedures and practices described in the SWMP and regulations.

The permittee shall further utilize IPM controls to reduce pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by employees or contractors, to public rights-of-way, parks, and other District property to ensure that:

- a. Pesticides are used only if monitoring indicates they are needed according to established guidelines;
- b. Fertilizers are used only when soil tests indicate that they are necessary, and only in minimum amounts and for needed purposes (e.g., seed germination).
- c. Treatments are made with the purpose of removing only the target organism;
- d. Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial, non-target organisms, and the environment;
- e. No pesticides or fertilizers are applied to an area immediately prior to an expected rain event, or during or immediately following a rain event, or when water is flowing off the area;

- f. No banned or unregistered pesticides are stored or applied;
- g. All staff applying pesticides are certified or are under the direct supervision of a pesticide applicator certified in the appropriate category;
- h. Procedures are implemented to encourage the retention and planting of native and/or non-invasive, naturalized vegetation to reduce water, pesticide and fertilizer needs;
- i. Pesticides and fertilizers are stored indoors or under cover on paved surfaces or enclosed in secondary containment and storage areas inspected regularly to reduce the potential for spills; and
- j. Landscapes that maximize on-site retention of stormwater, while minimizing mowing, chemical inputs and irrigation are given preference for all new landscape installation.

4.3.4.2 The permittee shall coordinate internally among departments for the purpose of ensuring that pesticide and fertilizer use within its jurisdiction does not threaten water quality.

4.3.4.3 The permittee shall partner with other organizations to ensure that pesticide and fertilizer use within their jurisdiction does not threaten water quality.

4.3.4.4 The permittee shall continue to conduct education and outreach, as well as provide incentives, to curtail the use of turf-grass fertilizers for the purpose of reducing nitrogen and phosphorous discharges to surface waters. The program shall incentivize the use of vegetative landscapes other than turf grass and other measures to restrict the use of turf grass fertilizers.

4.3.4.5 The permittee shall use GIS layers of public land and sewersheds, as well as background data, to identify priority areas for a targeted strategy to reduce the sources of pesticides, herbicides, and fertilizers that contaminate the stormwater runoff, and report progress toward completing the screening characterization in the next Updated SWMP.

4.3.4.6 The permittee shall include in each Annual Report a report on the implementation of the above application procedures, a history of the improvements in the control of these materials, and an explanation on how these procedures will meet the requirements of this permit.

4.3.5 Storm Drain System Operation and Management and Solids and Floatables Reduction

4.3.5.1 Within 18 months of the effective date of this permit, the permittee shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The permittee shall fully implement the plan upon EPA approval.

4.3.5.2 Until such time as the catch basin maintenance study has been completed and approved, the permittee shall ensure that each catch basin within the DC MS4 Permit Area is cleaned at least once annually during the life of the permit. The permittee shall continue to use strategies for coordinated catch basin cleaning and street-sweeping that will optimize reduction of stormwater pollutants.

4.3.5.3 Within 18 months of the effective date of this permit, and consistent with the 2006 Outfall Survey, the permittee shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022. This schedule may be combined with the catch basin maintenance study outlined in 4.3.5.1. The repair schedule shall be fully implemented upon EPA approval.

4.3.5.4 The permittee shall comply with the Anacostia River Trash TMDL implementation provisions in Part 4.10 of this permit and apply the technologies and other activities developed in the Anacostia River Watershed Trash TMDL throughout the entire MS4 Permit Area. The permittee shall continue to report the progress of trash reduction in the Consolidated Annual Report.

4.3.6 Streets, Alleys and Roadways

4.3.6.1 Street sweeping shall be conducted on no less than 641 acres of roadway in the MS4 area annually in accordance with the following schedule:

TABLE 3
Street Sweeping

Area/Street Classification	Frequency
Arterials-heavily developed commercial and central business districts with considerable vehicular and pedestrian traffic	At least nine (9) times per year
Industrial areas	At least six (6) times per year
Residential-residential areas with limited throughway and pedestrian traffic AND neighborhood streets which are used for local purposes only	At least four (4) times per year
Central Business District/Commercial-neighborhood business districts and main streets with moderate vehicular and pedestrian traffic	At least one (1) time every two weeks

Environmental hot spots in the Anacostia River Watershed	At least two (2) times per month March through October
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4.3.6.2 Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation, and these areas should have effective erosion control until stabilized.

4.3.6.3 The permittee shall continue to evaluate and update the use, application and removal of anti-icers, chemical deicers, salt, sand, and/or sand/deicer mixtures in an effort to minimize the impact of these materials on water quality. The permittee shall investigate and implement techniques available for reducing pollution from deicing salts in snowmelt runoff and runoff from salt storage facilities. The permittee shall evaluate and implement the use of porous/permeable surfaces that require less use of deicing materials and activities. This evaluation shall be made a part of an overall investigation of ways to meet the requirements of the Clean Water Act and reported in each Annual Report.

4.3.6.4 The permittee shall continue to implement and update a program to ensure that excessive quantities of snow and ice control materials do not enter the District’s water bodies. The permittee shall report its progress in implementing the program in each Annual Report. Except during a declared Snow Emergency when the permittee determines that the foremost concern of snow removal activities is public health and safety, it shall avoid snow dumping or storage in areas adjacent to water bodies, wetlands, and areas near public or private drinking water wells which would ultimately reenter the MS4.

4.3.7 Infrastructure Maintenance/Pollution Source Control Maintenance

The permittee shall continue to implement an operation and maintenance program that incorporates good housekeeping components at all municipal facilities located in the DC MS4 Permit Area, including but not limited to; municipal waste water treatment facility, potable drinking water facility, municipal fleet operations, maintenance garages, parks and recreation, street and infrastructure maintenance, and grounds maintenance operations, libraries and schools. The permittee shall document the program in the Annual Report, as required at Section 6.2 herein. The permittee shall, at a minimum:

1. Continue to implement maintenance standards at all municipal facilities that will protect the physical, chemical and biological integrity of receiving waters.
2. Continue to implement an inspection schedule in which to perform inspections to determine if maintenance standards are being met. Inspections shall be performed no less than once per calendar year and shall provide guidance in Stormwater Pollution Prevention Plan development and implementation, where needed.

3. Continue to implement procedures for record keeping and tracking inspections and maintenance at all municipal facilities.
4. Continue to implement an inspection and maintenance program for all permittee-owned management practices, including post-construction measures.
5. Continue to ensure proper operation of all treatment management practices and maintain them as necessary for proper operation, including all post-construction measures.
6. Ensure that any residual water following infrastructure maintenance shall be self-contained and disposed of legally in accordance with the Clean Water Act.

4.3.8 Public Industrial Activities Management/Municipal and Hazardous Facilities

For any municipal activity associated with industrial activity, as defined by 40 C.F.R. § 122.26, which discharges stormwater to, from and through the DC MS4, the permittee shall obtain separate coverage under either: (1) the EPA Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) (As modified May 27, 2009); or (2) an individual permit.

4.3.9 Emergency Procedures

The permittee may conduct repairs of essential public service systems and infrastructure in emergency situations. An emergency includes only those situations included as conditions necessary for demonstration of an upset at 40 C.F.R. 122.41(n). For each claimed emergency, the permittee shall submit to the Permitting Authority a statement of the occurrence of the emergency, an explanation of the circumstances, and the measures that were implemented to reduce the threat to water quality, no later than required by applicable Clean Water Act regulations.

4.3.10 Municipal Official Training

The permittee shall continue to implement an on-going training program for those employees specified below, and any other employees whose job functions may impact stormwater program implementation. The training program shall address the importance of protecting water quality, the requirements of this permit, design, performance, operation and maintenance standards, inspection procedures, selecting appropriate management practices, ways to perform their job activities to prevent or minimize impacts to receiving waters, and procedures for tracking, inspecting and reporting, including potential illicit discharges. The permittee shall provide follow-up and refresher training at a minimum of once every twelve months, and shall include any changes in procedures, techniques or requirements.

The training program shall include, but is not limited to, those employees who work in the following areas:

1. Municipal Planning
 2. Site plan review
 3. Design
 4. Construction
 5. Transportation planning and engineering
 6. Street/sewer and right-of-way construction and maintenance
 7. Water and sewer departments
 8. Parks and recreation department
 9. Municipal water treatment and waste water treatment
 10. Fleet maintenance
 11. Fire and police departments
 12. Building maintenance and janitorial
 13. Garage and mechanic crew
 14. Contractors and subcontractors who may be contracted to work in the above described
 15. areas
 16. Personnel responsible for answering questions about the permittee's stormwater program,
 17. including persons who may take phone calls about the program
 18. Any other department of the permittee that may impact stormwater runoff
- 4.4 Management of Commercial and Institutional Areas

The permittee shall establish and implement policies and procedures to reduce the discharge of pollutants in stormwater runoff from all commercial and institutional (including federal) areas covered by this permit.

The permittee shall ensure maintenance of all stormwater management controls in commercial and institutional land areas in accordance with the following provisions:

1. Tracking all controls;
2. Inspecting all controls on a regular basis, according to an inspection schedule;
3. Ensure compliance with the MS4 permit and municipal ordinances at commercial and institutional facilities.

4.4.1 Inventory of Critical Sources and Source Controls

4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. Critical sources to be tracked shall include the following:

- a. Automotive service facilities, *e.g.*, service, fueling and salvage facilities;
- b. Industrial activities, as defined at 40 C.F.R. §§ 122.26(b)(14); and
- c. Construction sites exceeding one acre, or sites under one acre that are part of a larger common plan of development.
- d. Dry cleaners

- e. Any other facility the permittee has identified as a Critical Source

4.4.1.2 The permittee shall include the following minimum fields of information for each industrial and commercial facility identified as a critical source:

- a. Name of facility and name of owner/ operator;
- b. Address of facility;
- c. Size of facility; and
- d. Activities conducted at the facility that could impact stormwater.
- e. Practices and/or measures to control pollutants.
- f. Inspection and maintenance schedules, dates and findings.

4.4.1.3 The permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (*e.g.*, business licenses, pretreatment permits, sanitary sewer hook-up permits, and similar information).

4.4.2 Inspection of Critical Sources

The permittee shall continue to inspect all commercial facilities identified in Part 4.4.1. herein and any others found to be critical sources twice during the five-year term of the permit. A minimum interval of six months between the first and the second mandatory compliance inspection is required, unless a follow-up inspection to ensure compliance must occur sooner.

4.4.3 Compliance Assurance.

At each facility identified as a critical source, the permittee's inspector(s) shall verify that the operator is implementing a control strategy necessary to protect water quality. Where the permittee determines that existing measures are not adequate to protect water quality, the permittee shall require additional site-specific controls sufficient to protect water quality.

4.5 Management of Industrial Facilities and Spill Prevention

4.5.1 The permittee shall continue to implement a program to monitor and control pollutants in stormwater discharged from Industrial Facilities located within the MS4 Permit Area, as defined herein, pursuant to the requirements in 40 C.F.R. § 122.26(d)(2)(iv)(C). These facilities shall include, but are not limited to:

- a. Private Solid Waste Transfer Stations
- b. Hazardous Waste Treatment, Disposal, and/or Recovery Plants
- c. Industrial Facilities subject to SARA or EPCRA Title III
- d. Industrial Facilities with NPDES Permits
- e. Industrial facilities with a discharge to the MS4

4.5.2 The permittee shall continue to maintain and update the industrial facilities database.

4.5.3 The permittee shall continue to perform or provide on-site assistance/inspections and outreach focused on the development of stormwater pollution prevention plans and NPDES permit compliance.

4.5.4 The permittee shall continue to refine and implement procedures to govern the investigation of facilities suspected of contributing pollutants to the MS4, including at a minimum: (i) a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit; and (ii) wet weather screening as required by Part 5.2.1 herein (including collecting data on discharges from industrial sites). These procedures shall be submitted as part of each Annual Report required by Part 6.2 herein.

4.5.5 The permittee shall continue to implement the prohibition against illicit discharges, control spills, and prohibit dumping. Continue to implement a program to prevent, contain, and respond to spills that may discharge to the MS4, and report on such implementation submitted in each Annual Report. The spill response program may include a combination of spill response actions by the permittee and/or another public or private entity.

4.5.6 The permittee shall report progress in developing and carrying out industrial-related programs in each Annual Report required by Section 6 herein. Provide an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act.

4.6 Stormwater Management for Construction Sites

4.6.1 Continue implementation of the Program that reduces the discharge of pollutants from construction sites. In each Annual Report, the permittee shall evaluate and report to determine if the existing practices meet the requirements of 40 C.F.R. § 122.26(d)(2)(iv)(A) and (D).

4.6.2 Continue the review and approval process of the sediment and erosion control plans under this program. Also, the permittee shall ensure that all construction projects impacting one acre or greater, or less than one acre when part of a larger common plan of development or sale equal to or larger than one acre, are not authorized until documentation is provided that they have received EPA NPDES Construction General Permit Coverage.

4.6.3 Continue to implement inspection and enforcement procedures, including but not limited to inspection of permitted construction sites that disturb more than 5,000 square feet of soil as follows:

1. First inspection prior to ground disturbing activities to review planned sediment and erosion control measures;
2. Second inspection to verify proper installation and maintenance of sediment and erosion control measures;

3. Third inspection to review planned installation and maintenance of stormwater management practices;
4. Fourth inspection to verify proper installation of stormwater management practices following final stabilization of the project site; and
5. Other inspections as necessary to ensure compliance with relevant standards and requirements.

4.6.4 When a violation of local erosion and sediment control ordinances occurs, the permittee shall follow existing enforcement procedures and practices using standardized reports as part of the inspection process to provide accurate record keeping of inspections of construction sites. The permittee shall use a listing of all violations and enforcement actions to assess the effectiveness of the Enforcement Program in each Annual Report.

4.6.5 Continue with educational measures for construction site operators (Section 4.9 of this permit) that consist, at a minimum, of providing guidance manuals and technical publications.

4.6.6 Report progress in developing and carrying out the above construction-related programs in each Annual Report required by Parts 6.2 herein, including: (i) an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act; (ii) an explanation as to how the implementation of these procedures, particularly with regard to District “waivers and exemptions”, will meet the requirements of the Clean Water Act; and (iii) discussion of progress toward meeting TMDL and the District Watershed Implementation Plan deadlines.

4.7 Illicit Discharges and Improper Disposal.

4.7.1 The permittee shall continue to implement an ongoing program to detect illicit discharges, pursuant to the SWMP, and Part 4 of this permit, and to prevent improper disposal into the storm sewer system, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). Such program shall include, at a minimum the following:

- a. An updated schedule of procedures and practices to prevent illicit discharges, as defined at 40 C.F.R. § 122.26(b)(2), and, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1), to detect and remove illicit discharges as defined herein;
- b. An updated inventory (organized by watershed) of all outfalls that discharge through the MS4 including any changes to the identification and mapping of existing permitted outfalls. Such inventory shall include, but not be limited to, the name and address, and a description (such as SIC code) which best reflects the principal products or services provided by each facility which may discharge to the MS4;
- c. Continue to implement an illicit connection detection and enforcement program to perform dry weather flow inspections in target areas;

- d. Visual inspections of targeted areas;
- e. Issuance of fines, tracking and reporting illicit discharges, and reporting progress on stopping targeted illicit discharges, and in appropriate cases, chemical testing immediately after discovery of an illicit discharge;
- f. Enforcement procedures for illicit discharges set forth in Part 4 herein;
- g. All necessary inspection, surveillance, and monitoring procedures to remedy and prevent illicit discharges. The permittee shall submit an inspection schedule, inspection criteria, documentation regarding protocols and parameters of field screening, and allocation of resources as a part of each Annual Report.
- h. The permittee shall continue to implement procedures to prevent, contain, and respond to spills that may discharge into the MS4. The permittee shall provide for the training of appropriate personnel in spill prevention and response procedures.
- i. The permittee shall report the accomplishments of this program in each Annual Report.

4.7.2 The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls.

4.7.3 The permittee shall continue to implement the prohibition against the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. The permittee shall ensure the implementation of programs to collect used motor vehicle fluids (at a minimum oil and anti-freeze) for recycle, reuse, and proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. The permittee shall ensure that such programs are readily available within the District, and that they are publicized and promoted on a regular basis, pursuant to Public Education provisions in this permit at Part 4.9 herein.

4.7.4 The permittee shall continue to work with members of the Metropolitan Police Department to enhance illegal dumping enforcement.

4.7.5 The permittee shall implement the District's ban on coal tar pavement products, including conducting outreach and enforcement activities.

4.7.6 The permittee shall implement the Anacostia Clean Up and Protection Act of 2009, to ban the use of disposable non-recyclable plastic carryout bags and restrict the use on disposable carryout bags in certain food establishments.

4.8 Flood Control Projects

4.8.1 The permittee shall update the impervious surface analysis of floodplains six months after the approval of the revised Flood Insurance Rate Maps by the Federal Emergency Management Agency.

4.8.2 The permittee shall assess potential impacts on the water quality and the ability of the receiving water to support beneficial uses for all flood management projects. Evaluate the feasibility of retrofitting existing flood control devices to provide additional pollutant and volume removal from stormwater. Report results of such assessment, mapping program, and feasibility studies in the Annual Report (Part 6.2 herein).

4.8.3 The permittee shall review all development proposed in flood plain areas to ensure that the impacts on the water quality of receiving water bodies have been properly addressed. Information regarding impervious surface area located in the flood plains shall be used (in conjunction with other environmental indicators) as a planning tool. The permittee shall collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development beginning six months after the effective date of this permit. The permittee shall collect similar data for existing development in flood plain areas, in accordance with the mapping program and other activities designed to improve water quality. Critical unmapped areas shall be prioritized by the permittee with an emphasis on developed and developing acreage. Reports of this work shall be summarized in the Annual Report.

4.9 Public Education and Public Participation

The permittee shall continue to implement a public education program including but not limited to an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the permittee. The purpose of education is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Education initiatives may be developed locally or regionally.

4.9.1 Education and Outreach.

4.9.1.1 The permittee shall continue to implement its education and outreach program for the area served by the MS4 that was established during the previous permit cycle. The outreach program shall be designed to achieve measurable improvements in the target audience's understanding of stormwater pollution and steps they can take to reduce their impacts.

4.9.1.2 The permittee shall assess current education and outreach efforts and identify areas where additional outreach and education are needed. Audiences and subject areas to be considered include:

a. General public

- 1) General impacts of stormwater flows into surface waters
- 2) Impacts from impervious surfaces
- 3) Source control practices and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping, and rain water reuse.

- 4) A household hazardous waste educational and outreach program to control illicit discharges to the MS4 as required herein
 - 5) Information and education on proper management and disposal of used oil, other automotive fluids, and household chemicals
 - 6) Businesses, including home-based and mobile businesses
 - 7) Management practices for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
 - 8) Impacts of illicit discharges and how to report them including information for industries about stormwater permitting and pollution prevention plans and the requirement that they develop structural and non-structural control systems
- b. Homeowners, landscapers and property managers
- 1) Use of low or no phosphorus fertilizers, alternatives to fertilizers, alternative landscaping requiring no fertilizers
 - 2) Landscape designs to reduce runoff and pollutant loadings
 - 3) Car washing alternatives with the objective of eliminating phosphorus detergent discharges
 - 4) Yard care techniques that protect water quality
 - 5) Management practices for use and storage of pesticides and fertilizers
 - 6) Management practices for carpet cleaning and auto repair and maintenance
 - 7) Runoff Reduction techniques, including site design, on-site retention, pervious paving, retention of forests and mature trees
 - 8) Stormwater pond maintenance
- c. Engineers, contractors, developers, review staff and land use planners
- 1) Technical standards for construction site sediment and erosion control
 - 2) Runoff Reduction techniques, including site design, on-site reduction, pervious pavement, alternative parking lot design, retention of forests and mature trees
 - 3) Stormwater treatment and flow control controls
 - 4) Impacts of increased stormwater flows into receiving water bodies

4.9.2 Measurement of Impacts.

The permittee shall continue to measure the understanding and adoption of selected targeted behaviors among the targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.

4.9.3 Recordkeeping.

The permittee shall track and maintain records of public education and outreach activities.

4.9.4 Public Involvement and Participation.

The permittee shall continue to include ongoing opportunities for public involvement through advisory councils, watershed associations and/or committees, participation in developing updates to the stormwater fee system, stewardship programs, environmental activities or other similar activities. The permittee shall facilitate opportunities for direct action, educational, and volunteer programs such as riparian planting, volunteer monitoring programs, storm drain marking or stream clean up programs.

4.9.4.1 The permittee shall continue to create opportunities for the public to participate in the decision making processes involving the implementation and update of the permittee's SWMP. In particular, the permittee shall provide meaningful opportunity for the public to participate in the development of the permittee's Consolidated TMDL Implementation Plan. The permittee shall continue to implement its process for consideration of public comments on their SWMP.

4.9.4.2 The permittee shall continue to establish a method of routine communication to groups such as watershed associations and environmental organizations that are located in the same watershed(s) as the permittee, or organizations that conduct environmental stewardship projects located in the same watershed(s) or in close proximity to the permittee. This is to make these groups aware of opportunities for their direct involvement and assistance in stormwater activities that are in their watershed.

4.9.4.3 The permittee shall make all draft and approved MS4 documents required under this permit available to the public for comment. The current draft and approved SWMP and the MS4 annual reports deliverable documents required under this permit shall be posted on the permittee's website.

4.9.4.4 The permittee shall continue to develop public educational and participation materials in cooperation and coordination with other agencies and organizations in the District with similar responsibilities and objectives. Progress reports on public education shall be included in the Annual Report. An explanation shall be provided as to how this effort will reduce pollution loadings to meet the requirements of this permit.

4.9.4.5 The permittee shall periodically, and at least annually, update its website.

4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation

4.10.1 Anacostia River Watershed Trash TMDL Implementation

The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term.

Reductions must be made through a combination of the following approaches:

1. Direct removal from waterbodies, e.g., stream clean-ups, skimmers
2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks
3. Direct removal prior to entry to the MS4, e.g., street sweeping
4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection
5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees

At the end of the first year the permittee must submit the trash reduction calculation methodology with Annual Report to EPA for review and approval. The methodology should accurately account for trash prevention/removal methods beyond those already established when the TMDL was approved, which may mean crediting a percentage of certain approaches. The calculation methodology must be consistent with assumptions for weights and other characteristics of trash, as described in the 2010 Anacostia River Watershed Trash TMDL.

Annual reports must include the trash prevention/removal approaches utilized, as well as the overall total weight (in pounds) of trash captured for each type of approach.

The requirements of this Section, and related elements as appropriate, shall be included in the Consolidated TMDL Implementation Plan (Section 4.10.3).

4.10.2 Hickey Run TMDL Implementation

The permittee shall implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run as described in the updated Plan to satisfy the requirements of the oil and grease wasteload allocations for Hickey Run. If monitoring or other assessment determine it to be necessary, the permittee shall install or implement appropriate controls to address oil & grease in Hickey Run no later than the end of this permit term. As appropriate, any requirement of this Section not completed prior to finalization of the Consolidated TMDL Implementation Plan (Section 4.10.3) shall be included in that Plan.

4.10.3 Consolidated TMDL Implementation Plan

For all TMDL wasteload allocations assigned to District MS4 discharges, the permittee shall develop, public notice and submit to EPA for review and approval a consolidated TMDL Implementation Plan within 30 months of the effective date of this permit provision. This Plan shall include, at a minimum, the following TMDLs and any subsequent updates:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
3. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
4. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
5. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

6. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
7. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
8. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
9. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
10. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
11. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
12. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
13. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
14. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
15. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

This Plan shall place particular emphasis on the pollutants in Table 4, but shall also evaluate other pollutants of concern for which relevant WLAs exist. EPA will incorporate elements of the Consolidate TMDL Implementation Plan as enforceable permit provisions, including milestones and final dates for attainment of applicable WLAs. The permittee shall fully implement the Plan upon EPA approval. This Plan shall preempt any existing TMDL implementation plans for the relevant WLAs. To account for any new or revised TMDL established or approved by EPA with wasteload allocations assigned to District MS4 discharges, the permittee shall submit an updated Consolidated TMDL Implementation Plan annually, as necessary. Such updates will account for any actions taken in the 12-month period preceding the date 6 months before the revision is due. If necessary, the first such update will be due 18 months after the submittal of the initial Plan, with subsequent updates due on the anniversary of the submittal date.

The Plan shall include:

1. A specified schedule for attainment of WLAs that includes final attainment dates and, where applicable, interim milestones and numeric benchmarks.
 - a. Numeric benchmarks will specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
 - b. Interim milestones will be included where final attainment of applicable WLAs requires more than five years. Milestone intervals will be as frequent as possible but will in no case be greater than five (5) years.
2. Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
3. An associated narrative providing an explanation for the schedules and controls included in the Plan.

4. Unless and until an applicable TMDL is no longer in effect (e.g., withdrawn, reissued or the water delisted), the Plan must include the elements in 1-3 above for each TMDL as approved or established.
5. The current version of the Plan will be posted on the permittee's website.

4.10.4 Adjustments to TMDL Implementation Strategies

If evaluation data, as outlined in the monitoring strategy being developed per Part 5.1, indicate insufficient progress towards attaining any WLA covered in 4.10.1, 4.10.2 or 4.10.3, the permittee shall make the appropriate adjustments within six (6) months to address the insufficient progress and document those adjustments in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the incorporated milestones. Annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant, outlined in Part 4.10.

4.11 Additional Pollutant Sources

For any additional pollutant sources not addressed in sections 4.1 through 4.9, the permittee shall continue to compile pertinent information on known or potential pollution sources, including significant changes in:

1. land use activities,
2. population estimates,
3. runoff characteristics,
4. major structural controls,
5. landfills,
6. publicly owned lands, and
7. industries impacting the MS4.

For purposes of this section, “significant changes” are changes that have the potential to revise, enhance, modify or otherwise affect the physical, legal, institutional, or administrative characteristics of the above-listed potential pollution sources. This information shall be submitted in each of the Annual Reports submitted to EPA pursuant to the procedures in Part 6.2 herein. For the Stormwater Model, analysis of data for these pollution sources shall be reported according to Part 7 herein.

The permittee shall implement controls to minimize and prevent discharges of pollutants from additional pollutant sources, including but not limited to Bacteria (*E. coli*), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash, to receiving waters. Controls shall be designed to prevent and restrict priority pollutants from coming into contact with stormwater, e.g., restricting the use of lawn fertilizers rather than end-of-pipe treatment. These strategies shall include program priorities and a schedule of activities to address those priorities and an outline of which agencies will be responsible for implementing those strategies. The strategies used to reduce or eliminate these pollutants shall be documented in updates to the Stormwater Management Program Plan.

5. MONITORING AND ASSESSMENT OF CONTROLS

5.1 Revised monitoring program

5.1.1 Design of the Revised Monitoring Program

Within 30 months of the effective date of Part 4.10.3 of this permit the permittee shall develop, public notice and submit to EPA for review and approval a revised monitoring program. The permittee shall fully implement the program upon EPA approval. The revised monitoring program shall meet the following objectives:

1. Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of sampling stations must be adequate to ensure data are statistically significant and interpretable.
2. Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).
3. Include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

Table 4
Monitoring Parameters

Parameter
<i>E. coli</i>
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

4. All chemical analyses shall be performed in accordance with analytical methods approved under 40 C.F.R. Part 136. When there is not an approved analytical method, the applicant may use any suitable method as described in Section 5.7 herein, but must provide a description of the method.

5.1.2 Utilization of the Revised Monitoring Program

The permittee must use the information to evaluate the quality of the stormwater program and the health of the receiving waters at a minimum to include:

1. The permittee shall estimate annual cumulative pollutant loadings for pollutants listed in Table 4. Pollutant loadings and, as appropriate, event mean concentrations, will be reported in DMRs and annual reports on TMDL implementation for pollutants listed in Table 4 in discharges from the monitoring stations in Table 5.
2. The permittee shall perform the following activities at least once during the permit term, but no later than the fourth year of this permit:
 - a. Identify and prioritize additional efforts needed to address water quality exceedances, and receiving stream impairments and threats;
 - b. Identify water quality improvements or degradation

Upon approval of the Revised Monitoring Program by EPA Region III, or 2 years from the effective date of this permit, whichever comes first, the permittee shall begin implementation of the Revised Monitoring Program.

5.2 Interim Monitoring

Until such time as EPA has approved the Revised Monitoring Program, the permittee shall implement the following monitoring program:

5.2.1 Wet Weather Discharge Monitoring

The permittee shall monitor for the parameters identified in Table 4 herein, at the locations listed in Table 5 herein. Monitoring frequency for chemical/physical parameters shall be taken by at least three times per year at a minimum. This does not include a geomorphologic assessment and/or physical habitat assessment. The permittee shall conduct sampling as provided in 40 C.F.R. § 122.21(g)(7).

The permittee shall monitor and provide an annual Discharge Monitoring Report for the period of interim monitoring.

TABLE 5
Monitoring Stations

A. Anacostia River Sub Watershed Monitoring Sites
1. Gallatin Street & 14 th Street N.E. across from the intersection of 14 th St. and Gallatin St. in an outfall (MS-2)
2. Anacostia High School/Anacostia Recreation Center – Corner of 17 th St and Minnesota Ave SE
B. Rock Creek Subwatershed Monitoring Sites
1. Walter Reed -- Fort Stevens Drive -- 16 th Street and Fort Stevens Road, N.W. at an outfall (MS-6)
2. Soapstone Creek -- Connecticut Avenue and Ablemarle Street N.W. at an outfall (MS-5)
C. Potomac River Subwatershed Monitoring Sites
1. Battery Kemble Creek-49th and Hawthorne Streets, N.W. at an outfall (MS-4)
2. Oxon Run-Mississippi Avenue and 15 th Street, S.E. into Oxon Run via an outfall (MS-1)

The permittee may revise this list of sites in accordance with its revised monitoring program in Section 5.1 herein. Otherwise, changes to the above MS4 monitoring stations and/or sites for any reason shall be considered a major modification to the permit subject to the reopener clause.

During the interim monitoring period for the pollutants listed in Table 4, demonstration of compliance will be calculated using the procedures identified in the SWMP, the approved Anacostia River TMDL Implementation Plan, and/or other appropriate modeling tools and data on management practices efficiencies. The annual report will provide all monitoring data, and a brief synthesis of whether the data indicate that relevant wasteload allocations and other relevant targets are being achieved.

5.2.2 Storm Event Data

In addition to the parameters listed above, the permittee shall continue to maintain records of the date and duration (in hours) of the storm events sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration (in hours) between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and a calculated flow estimate of the total volume (in gallons) and nature of the discharge sampled.

5.2.3 Sample Type, Collection, and Analysis

The following requirements apply only to samples collected for Part 5.2.1, Representative Monitoring.

1. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one sample shall be taken for pollutants listed in Table 4 including temperature, DO, pH and specific conductivity. For all parameters, data shall be reported for the entire event of the discharge pursuant to 40 C.F.R. § 122.26(d)(2)(iii).
2. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge, with each aliquot being separated by a minimum period of fifteen minutes.
3. Analysis and collection of samples shall be done in accordance with the most recent EPA approved laboratory methods and procedures specified at 40 C.F.R. Part 136 and its subsequent amendments.

5.2.4 Sampling Waiver

When a discharger is unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event.

Adverse climatic conditions which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.).

5.3 Dry Weather Monitoring

5.3.1 Dry Weather Screening Program

The permittee shall continue with ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4 pursuant to the District SWMP. The permittee shall perform the following: (1) continue to screen known problem sewersheds within the District based on past screening activities; (2) continue to inventory all MS4 outfalls in the District and inspect all outfalls by the end of the permit term; and (3) ensure that the dry weather screening program has addressed all watersheds within the permit term. The screening shall be

sufficient to estimate the frequency and volume of dry weather discharges and their environmental impact.

5.3.2 Screening Procedures

Screening may be developed and/or modified based on experience gained during actual field screening activities. The permittee shall establish a protocol which requires screening to ensure that such procedures are occurring, but such protocol need not conform to the procedures published at 40 C.F.R. § 122.26(d)(1)(iv)(D). The permittee shall describe the protocol actually used in each Annual Report with a justification for its use. The procedures described in the SWMP shall be used as guidance.

5.3.3 Follow-up on Dry Weather Screening Results

The permittee shall continue to implement its enforcement program for locating and ensuring elimination of all suspected sources of illicit connections and improper disposal identified during dry weather screening activities. The permittee shall report the results of such implementation in each Annual Report.

5.4. Area and/or Source Identification Program

The permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.

5.5 Flow Measurements

The permittee shall continue to select and use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device.

5.6 Monitoring and Analysis Procedures

5.6.1 Monitoring must be conducted according to laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments, unless other test procedures have been specified in the permit.

5.6.2 The permittee is authorized to use a more current or sensitive (i.e., lower) detection method than the one identified in 40 C.F.R. Part 136 exists for a particular parameter, including but not limited to PCBs (Method 1668B) and mercury (Method 1631E). If used, the permittee shall report using the more current and/or more sensitive method for compliance reporting and monitoring purposes.

5.6.3 EPA reserves the right to modify the permit in order to require a more sensitive method for measuring compliance with any pollutant contamination levels, consistent with 40 CFR, Part 136, should it become necessary.

5.7 Reporting of Monitoring Results

The permittee shall continue to report monitoring results annually in a Discharge Monitoring Report. If NetDMR (<http://www.epa.gov/netdmr/>) is unavailable to any of the following then the original and one copy of the Report are to be submitted at the following addresses:

NPDES Permits Branch
U.S. EPA Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, PA 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Monitoring results obtained during the previous year shall be summarized and reported in the Annual Report.

5.8 Additional Monitoring by the Permittee

If the permittee monitors (for the purposes of this permit) any pollutant more frequently than required by this permit, using laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual Discharge Monitoring Report. Such frequency shall also be indicated.

5.9 Retention of Monitoring Information

The permittee shall continue to retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation for a period of at least five(5) years from the date of the sample, measurement or report. This period may be extended by request of EPA at any time.

5.10 Record Content

Records of monitoring information shall include:

1. The date, exact location, time and methods of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

6. **REPORTING REQUIREMENTS**

The permittee shall comply with the reporting requirements identified in this section, including but not limited to the deliverables identified in Table 6 below.

TABLE 6
Reporting Requirements

Submittal	Deadline
Discharge Monitoring Report	Each year on the anniversary of the effective date of the permit (AEDOP)
Annual Report	Each year on the AEDOP.
MS4 Permit Application	Six months prior to the permit expiration date.

6.1 Discharge Monitoring Reports

The permittee shall provide discharge monitoring reports per Part 5.7 of this permit on the quality of stormwater discharges from the MS4 for all analytical chemical monitoring stipulated in Part 5 of this permit.

6.2 Annual Reporting

The permittee shall submit an Annual Report to EPA on or by the effective yearly date of the permit for the duration of the permitting cycle. At the same time the Annual Report it submitted to EPA it shall also be posted on the permittee's website at an easily accessible location. If the annual report is subsequently modified per EPA approval (part 6.2.3 of this permit) the updated report shall be posted on the permittee's website.

6.2.1 Annual Report.

The Annual Report shall follow the format of the permit as written, address each permit requirement, and also include the following elements:

- a. A review of the status of program implementation and compliance (or non-compliance) with all provisions and schedules of compliance contained in this

- permit, including documentation as to compliance with performance standards and other provisions and deliverables contained in Section 4 herein;
- b. A review of monitoring data and any trends in estimated cumulative annual pollutant loadings, including TMDL WLAs and TMDL implementation activities;
 - c. An assessment of the effectiveness of controls established by the SWMP;
 - d. An assessment of the projected cost of SWMP implementation for the upcoming year (or longer) and a description of the permittee's budget for existing stormwater programs, including: (i) an overview of the permittee's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs; and (iv) a demonstration of adequate fiscal capacity to meet the requirements of this permit, subject to the (a) the federal Anti-Deficiency Act, 31 U.S.C. §§ 1341, 1342, 1349, 1351, (b) the District of Columbia Anti-Deficiency Act, D.C. Official Code §§ 47-355.01-355.08 (2001), (c) D.C. Official Code § 47-105 (2001), and (d) D.C. Official Code § 1-204.46 (2006 Supp.), as the foregoing statutes may be amended from time to time;
 - e. A summary describing the number and nature of enforcement actions, inspections, and public education programs and installation of control systems;
 - f. Identification of water quality improvements or degradation through application of a measurable performance standard as stated throughout this permit;
 - g. Results of storm and water quality modeling and its use in planning installation of control systems and maintenance and other activities;
 - h. An assessment of any SWMP modifications needed to meet the requirements of this permit;
 - i. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 C.F.R. § 122.26(d)(2)(iv) and (v);
 - j. Methodology to assess the effects of the Stormwater Management Program (SWMP);
 - k. Annual expenditures and budget for the year following each annual report;
 - l. A summary of commitments for the next year and evaluation of the commitments from the previous year;
 - m. A summary of the monitoring data for stormwater and ambient sampling that is collected in the previous year and the plan, including identification of monitoring locations, to collect additional data for the next year;
 - n. The amount of impervious cover within the District, and within the three major watersheds in the District (Anacostia, Potomac and Rock Creek);
 - o. The percentage of effective impervious cover reduced annually, including but not limited to the number and square footage of green roofs installed in the District, including the square footage of drainage managed by practices that meet the performance standard in 4.1.1; and
 - p. An analysis of the work to be performed in the next successive year, including performance measures for those tasks. In the following year, progress with those performance measures shall be part of the Annual Report. The basis for each of the performance standards, which will be used as tools for evaluating environmental results and determining the success of each MS4 activity, shall be described incorporating an integrated program approach that considers all programs and projects which have a direct as well as an indirect affect on

stormwater management quantity and quality within the District. The report shall also provide an update of the fiscal analysis for each year of the permit as required by 40 C.F.R. § 122.26(d)(2)(vi).

6.2.2 Annual Report Meeting

Within 12 months of the effective date of this permit the permittee shall convene an annual report meeting with EPA to present annual progress and plans for the following year. In conjunction with this meeting the annual written report may consist of presentation materials summarizing all required elements of the annual report rather than a lengthy written report, as long as all required elements are included. Following this first annual reporting meeting EPA and the permittee shall determine if the meeting and associated presentation materials constitute an effective reporting mechanism. With the agreement of both EPA and the permittee the annual reporting meeting and the use of summarized presentation materials in lieu of a lengthy written report may be extended for the remainder of the permit term.

6.2.3 Annual Report Revisions

Each Annual Report may be revised with written approval by EPA. The revised Report will become effective after its approval.

6.2.4 Signature and Certification

The permittee shall sign and certify the Annual Report in accordance with 40 C.F.R §122.22(b), and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been appraised of the content of such submissions. The permittee shall provide a description of the procedure used to meet the above requirement.

6.2.5 EPA Approval

In reviewing any submittal identified in Table 1 or 6, EPA may approve or disapprove each submittal. If EPA disapproves any submittal, EPA shall provide comments to the permittee. The permittee shall address such comments in writing within thirty (30) days of receipt of the disapproval from EPA. If EPA determines that the permittee has not adequately addressed the disapproval/comments, EPA may revise that submittal or portions of that submittal. Such revision by EPA is effective thirty (30) days from receipt by the permittee. Once approved by EPA, or in the event of EPA disapproval, as revised by EPA, each submission shall be an enforceable element of this permit.

6.3 MS4 Permit Application

The permittee develop a permit Application based on the findings presented in each of the Annual SWMP Reports submitted during the permitting cycle to be submitted six months prior to the expiration date of the permit. The permit application shall define the next iterative set of objectives for the program and provide an analysis to demonstrate that these objectives will be achieved in the subsequent permit term.

7. **STORMWATER MODEL**

The permittee shall continue to update and report all progress made in developing a Stormwater Model and Geographical Information System (GIS) to EPA on an annual basis as an attachment to each Annual Report required herein.

On an annual basis, the permittee shall report on pollutant load reductions throughout the area covered by this permit using the statistical model developed by DDOE or other appropriate model. In the annual update, the permittee shall include, at a minimum, other applicable components which are not only limited to those activities identified in Section 6 herein, but which are necessary to demonstrate the effectiveness of the permittee's Stormwater Management Program toward implementing a sustainable strategy for reducing stormwater pollution runoff to the impaired waters of the District of Columbia.

Assess performance of stormwater on-site retention projects through monitoring, modeling and/or estimating storm retention capacity to determine the volume of stormwater removed from the MS4 in a typical year of rainfall as a result of implementing stormwater controls. This provision does not require all practices to be individually monitored, only that a reasonable evaluation strategy must provide estimates of overall volume reductions by sewershed.

8. **STANDARD PERMIT CONDITIONS FOR NPDES PERMITS**

8.1 Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and may result in an enforcement action; permit termination, revocation and reissuance, or modification; and denial of a permit renewal application.

8.2 Inspection and Entry

The permittee shall allow EPA, or an authorized representative, and/or the permittee's contractor(s)/subcontractor(s), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises at reasonable times where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be maintained under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), processes, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

8.3 Civil and Criminal Penalties for Violations of Permit Conditions

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

The Clean Water Act provides that any person who violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act, or any permit condition or limitation implementing such section, or any requirement imposed in an approved pretreatment program and any person who violates any Order issued by EPA under Section 301(a) of the Act, shall be subject to a civil penalty not to exceed \$25,000 per day for each violation, Pursuant to the Civil Monetary Penalty Inflation Adjustment Rule, EPA has raised the statutory maximum penalty for such violations to \$37,500 per day for each such violation. 74 Fed. Reg. 626 (Jan. 7, 2009). The Clean Water Act also provides for an action for appropriate relief including a permanent or temporary injunction.

Any person who negligently violates Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, any permit condition or limitation implementing any such section, shall be punished by a criminal fine of not less than \$5,000 nor more than \$50,000 per day of such violation, or by imprisonment for not more than 3 years, or by both. Any person who knowingly violates any permit condition or limitation implementing Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000, or by imprisonment of not more than 15 years, or by both.

8.4 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

In the event that the permittee or permitting authority determines that discharges are causing or contributing to a violation of applicable WQS, the permittee shall take corrective action to eliminate the WQS exceedance or correct the issues and/or problems by requiring the party or parties responsible for the alleged violation(s) comply with Part I.C.1 (Limitations to Coverage) of this permit. The methods used to correct the WQS exceedances shall be documented in subsequent annual reports and in revisions to the Stormwater Management Program Plan.

8.5 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this permit;
2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;
4. Information newly acquired by the Agency, including but not limited to the results of the studies, planning, or monitoring described and/or required by this permit;
5. Material and substantial facility modifications, additions, and/or expansions;
6. Any anticipated change in the facility discharge, including any new significant industrial discharge or changes in the quantity or quality of existing industrial discharges that will result in new or increased discharges of pollutants; or
7. A determination that the permitted activity endangers human health or the environment and that it can only be regulated to acceptable levels by permit modification or termination.

The effluent limitations expressed in this permit are based on compliance with the District of Columbia's water quality standards in accordance with the Clean Water Act. In the event of a revision of the District of Columbia's water quality standards, this document may be modified by EPA to reflect this revision.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. When a permit is modified, only conditions subject to modification are reopened.

8.6 Retention of Records

The permittee shall continue to retain records of all documents pertinent to this permit not otherwise required herein, including but not limited copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the expiration date of this permit. This period may be extended by request of EPA at any time.

8.7 Signatory Requirements

All Discharge Monitoring Reports, plans, annual reports, certifications or information either submitted to EPA or that this permit requires be maintained by the permittee shall be signed by either a principal executive officer or ranking elected official, or a duly authorized representative of that person. A person is a duly authorized representative only if: (i) the authorization is made in writing by a person described above and submitted to EPA; and (ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for an agency. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new notice satisfying the requirements of this paragraph must be submitted to EPA prior or together with any reports, information, or applications to be signed by an authorized representative.

8.8 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, 33 U.S.C. § 1321.

8.9 District Laws, Regulations and Ordinances

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable District law, regulation or ordinance identified in the SWMP. In the case of “exemptions and waivers” under District law, regulation or ordinance, Federal law and regulation shall be controlling.

8.10 Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

8.11 Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

8.12 Transfer of Permit

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if:

1. The current permittee notifies the EPA, in writing of the proposed transfer at least 30 days in advance of the proposed transfer date;
2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
3. The EPA does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

8.13 Construction Authorization

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

8.14 Historic Preservation

During the design stage of any project by the Government of the District of Columbia within the scope of this permit that may include ground disturbance, new and existing or retrofit construction, or demolition of a structure, the permittee shall notify the Historic Preservation liaison and provide the liaison planning documents for the proposed undertaking. The documents shall include project location; scope of work or conditions; photograph of the area/areas to be impacted and the methods and techniques for accomplishing the undertaking. Depending on the complexity of the undertaking, sketches, plans and specifications shall also be submitted for review. The documentation will enable the liaison to assess the applicability of compliance procedures associated with Section 106 of the National Historic Preservation Act. Among the steps in the process are included:

1. The determination of the presence or absence of significant historic properties (architectural, historic or prehistoric). This can include the evaluation of standing structures and the determination of the need for an archaeological survey of the project area.
2. The evaluation of these properties in terms of their eligibility for nomination to the National Register of Historic Places.
3. The determination of the effect that the proposed undertaking will have on these properties.
4. The development of mitigating measures in conjunction with any anticipated effects.

All such evaluations and determinations will be presented to the permittee for its concurrence.

If an alternate Historic Preservation procedure is approved by EPA in writing during the term of this permit, the alternate procedure will become effective after its approval.

8.15 Endangered Species

The U.S. Fish and Wildlife Service (FWS) has indicated that Hay's Spring Amphipod, a Federally listed endangered species, occurs at several locations in the District of Columbia. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the endangered shortnose sturgeon occurs in the Potomac River drainage and may occur within the District of Columbia. The FWS and NOAA Fisheries indicate that at the present time there is no evidence that the ongoing stormwater discharges covered by this permit are adversely affecting these Federally-listed species. Stormwater discharges, construction, or any other activity that adversely affects a Federally-listed endangered or threatened species are not authorized under the terms and conditions of this permit.

The monitoring required by this permit will allow further evaluation of potential effects on these threatened and endangered species once monitoring data has been collected and analyzed. EPA requires that the permittee submit to NOAA Fisheries, at the same time it submits to EPA, the Annual Outfall Discharge Monitoring Report of the monitoring data which will be used by EPA and NOAA Fisheries to further assess effects on endangered or threatened species. If this data indicates that it is appropriate, requirements of this NPDES permit may be modified to prevent adverse impacts on habitats of endangered and threatened species.

The above-referenced Report of monitoring data is required under this permit to be sent on an annual basis to:

The United States Environmental Protection Agency
Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

8.16 Toxic Pollutants

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act, 33 U.S.C. § 1317(a), for a toxic pollutant which is present in the discharge and such standard or prohibition

is more stringent than any limitation for such pollutant in this permit, the permittee shall comply with such standard or prohibition even if the permit has not yet been modified to comply with the requirement.

8.17 Bypass

8.17.1 Bypass not exceeding limitations. In accordance with 40 C.F.R. § 122.41(m), the permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation.

8.17.2 Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice at least ten days before the date of the bypass. See 40 C.F.R. § 122.41(m)(3)(i).
2. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required by 40 C.F.R. § 122.41(l)(6) (24-hour notice). See 40 C.F.R. § 122.41(m)(3)(ii).

8.17.3 Prohibition of bypass. See 40 C.F.R. § 122.41(m)(4).

1. Bypass is prohibited, and EPA may take enforcement action against the permittee for bypass, unless:
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage as defined herein;
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - c. The permittee submitted notices as required herein.
2. EPA may approve an anticipated bypass, after considering its adverse effects, if EPA determines that it will meet the three conditions listed above.

8.18 Upset

Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of 40 C.F.R. § 122.41(n) are met.

8.19 Reopener Clause for Permits

The permit shall be modified or revoked and reissued, including but not limited to, for any of the following reasons:

1. To incorporate any applicable effluent standard or limitation issued or approved under Sections 301, 304, or 307 of the Clean Water Act, and any other applicable provision, such as provided for in the Chesapeake Bay Agreements based on water quality considerations, and if the effluent standard or limitation so issued or approved:
 - a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. Controls any pollutant not limited in the permit. The permit, as modified or reissued under this paragraph, shall also contain any other requirements of the Act then applicable; or
2. To incorporate additional controls that are necessary to ensure that the permit effluent limits are consistent with any applicable TMDL WLA allocated to the discharge of pollutants from the MS4 or to incorporate milestones and schedules of a TMDL Implementation Plan; or
3. As specified in 40 C.F.R. §§ 122.44(c), 122.62, 122.63, 122.64, and 124.5.

8.20 Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, it must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. EPA may grant permission to submit an application less than 180 days in advance but no longer than the permit expiration date. In the event that a timely and complete reapplication has been submitted and EPA is unable through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

9. PERMIT DEFINITIONS

Terms that are not defined herein shall have the meaning accorded them under section 502 of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, or its implementing regulations, 40 C.F.R. Part 122.

“Annual Report” refers to the consolidated Annual Report that the permittee is required to submit annually.

"Benchmark" as used in this permit is a quantifiable goal or target to be used to assess progress toward "milestones" (see separate definition) and WLAs, such as a numeric goal for BMP implementation. If a benchmark is not met, the permittee should take appropriate corrective action to improve progress toward meeting milestones or other objectives. Benchmarks are intended as an adaptive management aid and generally are not considered to be enforceable.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. See 40 C.F.R. § 122.41(m)(1)(i).

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. §§ 1251 *et seq.*

"Development" is the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet, including new development projects and redevelopment projects. For purposes of Parts 4.1.1 through 4.1.4 of the permit the requirements apply to discharges from sites for which design or construction commenced after 18 months from the effective date of this permit or as required by District of Columbia law, whichever is sooner. The permittee may exempt development projects receiving site plan approval prior to this date from these requirements.

"Director" means the Regional Administrator of USEPA Region 3 or an authorized representative.

"Discharge" for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

"Discharge Monitoring Report", "DMR" or "Outfall Discharge Monitoring Report" includes the monitoring and assessment of controls identified in Section 5 herein.

"EPA" means USEPA Region 3.

"Green Roof" is a low-maintenance roof system that stores rainwater where the water is taken up by plants and/or transpired into the air.

"Green Technology Practices" means stormwater management practices that are used to mimic pre-development site hydrology by using site design techniques that retain stormwater on-site through infiltration, evapotranspiration, harvest and use.

"Guidance" means assistance in achieving a particular outcome or objective.

"Illicit connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities, pursuant to 40 C.F.R. § 122.26(b)(2).

"Impaired Water" (or "Water Quality Impaired Water" or "Water Quality Limited Segment"): A water is impaired for purposes of this permit if it has been identified by the District or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards (these waters are called "water quality limited segments" under 40 C.F.R. 30.2(j)). Impaired waters include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established.

"Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit (i.e., an area where wastes are applied onto or incorporated into the soil surface [excluding manure spreading operations] for treatment or disposal), surface impoundment, injection well, or waste pile.

"Large or Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either: (1) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 C.F.R. Part 122); or (2) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 C.F.R. Part 122); or (3) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"Milestone" as used in this permit is an interim step toward attainment of a WLA that upon incorporation into the permit will become an enforceable limit or requirement to be achieved by a stated date. A milestone should be expressed in numeric terms, i.e. as a volume reduction, pollutant load, specified implementation action or set of actions or other objective metric, when possible and appropriate.

"MS4" refers to either a Large or Medium Municipal Separate Storm Sewer System.

"Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (1) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes; (2) Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); (3) not a combined sewer; and (4) not part of a Publicly-Owned Treatment Works as defined at 40 C.F.R. § 122.2.

“Offset” means a unit of measurement, either used as monetary or non-monetary compensation, as a substitute or replacement for mitigation of a stormwater control practice that has been determined to be impracticable to implement.

“Performance measure” means for purposes of this permit, a minimum set of criteria for evaluating progress toward meeting a standard of performance.

“Performance standard” means for purposes of this permit, a cumulative measure or provision for attainment of an outcome or objective.

"Permittee" refers to the Government of the District of Columbia.

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

“Pollutant of concern” means a pollutant in an MS4 discharge that may cause or contribute to the violation of a water quality criterion for that pollutant downstream from the discharge.

“Pre-Development Condition” means the combination of runoff, infiltration and evapotranspiration rates, volumes, durations and temperatures that typically existed on the site with natural soils and vegetation before human-induced land disturbance occurred. In the context of requirements in this permit the environmental objective is a stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.

“Retention” means the use of soils, vegetation, water harvesting and other mechanisms and practices to retain a target volume of stormwater on a given site through the functions of: pore space and surface ponding storage; infiltration; reuse, and/or evapotranspiration.

“Retrofit” means improvement in a previously developed area that results in reduced stormwater discharge volumes and pollutant loads and/or improvement in water quality over current conditions.

“Stormwater” means the flow of surface water which results from, and which occurs immediately following, a rainfall event, snow melt runoff, and surface runoff and drainage.

“Stormwater management” means (1) for quantitative control, a system of vegetative or structural measures, or both, which reduces the increased volume and rate of surface runoff caused by man-made changes to the land; and (2) for qualitative control, a system of vegetative, structural, and other measures which reduce or eliminate pollutants which might otherwise be carried by surface runoff.

“SWMP” is an acronym for Stormwater Management Program. For purposes of this permit, the term includes all stormwater activities described in the District’s SWMP Plan updated February 19, 2009, or any subsequent update, and all other strategies, plans, documents, reports, studies, agreements and related correspondences developed and used pursuant to the requirements of this permit.

“Severe property damage” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 C.F.R. § 122.41(m)(1)(ii).

“Total Maximum Daily Load (TMDL) Units” means for purposes of this permit, the sum of individual waste load allocations (WLAs) and natural background. Unless specifically permitted otherwise in an EPA-approved TMDL report covered under the permit, TMDLs are expressed in terms of mass per time, toxicity or other appropriate measure such as pollutant pounds of a total average annual load.

“TMDL Implementation Plan” means for purposes of this permit, a plan and subsequent revisions/updates to that plan that are designed to demonstrate how to achieve compliance with applicable waste load allocations as set forth in the permit requirements described in Section 4.10.3.

“Stormwater Management Program (SWMP)” is a modified and improved SWMP based on the existing SWMP and on information in each of the Annual Reports/Discharge Monitoring Reports. The purpose of the SWMP is to describe the list of activities that need to be done to meet the requirements of the Clean Water Act, an explanation as to why these activities will meet the Clean Water Act requirements, and a schedule for those activities.

“Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond reasonable control. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 C.F.R. § 122.41(n)(1).

“Waste pile” means any non-containerized accumulation of solid, nonflowing waste.

“Water quality standards” refers to the District of Columbia’s Surface and Ground Water Quality Standards codified at Code of District of Columbia Regulations §§ 21-1100 *et seq.*, which are effective on the date of issuance of the permit and any subsequent amendments which may be adopted during the life of this permit.

“Waters of the United States” is defined at 40 C.F.R. § 122.2.

ATTACHMENT

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FACT SHEET

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System (MS4)
Permit No. DC0000221 (Government of the District of Columbia)

NPDES PERMIT NUMBER: DC0000221 (Reissuance)

FACILITY NAME AND MAILING ADDRESS:

Government of the District of Columbia
The John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

MS4 ADMINISTRATOR NAME AND MAILING ADDRESS:

Director, District Department of the Environment
1200 First Street, N.E., 6th Floor
Washington, D.C. 20002

FACILITY LOCATION:

District of Columbia's Municipal Separate Storm Sewer System (MS4)

RECEIVING WATERS:

Potomac River, Anacostia River, Rock Creek, and Stream Segments Tributary
To Each Such Water Body

INTRODUCTION:

Today's action finalizes reissuance of the District of Columbia Municipal Separate Storm Sewer System (MS4) Permit. In the Final Permit EPA has continued to integrate the adaptive management approach with enhanced control measures to address the complex issues associated with urban stormwater runoff within the corporate boundaries of the District of Columbia, where stormwater discharges via the Municipal Separate Storm Sewer System (MS4).

Since the United States Environmental Protection Agency, Region III (EPA) issued the District of Columbia (the District) its first MS4 Permit in 2000, the Agency has responded to a number of legal challenges involving both that Permit (as well as amendments thereto) and the second-round MS4 Permit issued in 2004. For the better part of ten years, the Agency has worked with various parties in the litigation, including the District and two non-governmental organizations, Defenders of Wildlife and Friends of the Earth, to address the concerns of the various parties. The Agency has engaged in both litigation and negotiation, including formal

mediation.¹ These activities ultimately led to an enhanced stormwater management strategy in the District, consisting of measurable outputs for addressing the issues raised during the litigation and mediation process.

FACILITY BACKGROUND AND DESCRIPTION:

The Government of the District of Columbia owns and operates its own MS4, which discharges stormwater from various outfall locations throughout the District into its waterways.²

On April 21, 2010 EPA public noticed the Draft Permit. The Draft Fact Sheet published with that Draft Permit contains more extensive permit background information, and the reader is referred to that document for the history of the District of Columbia MS4 permit.

The public comment period closed on June 4, 2010. EPA received comments from 21 individual commenters and an additional 53 form letters. The Draft Permit, Draft Fact Sheet, and comments received on those documents are all available at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html. The Final Permit reflects many of the comments received. EPA is simultaneously releasing a responsiveness summary responding to these comments.

ACTION TO BE TAKEN:

EPA is today reissuing the District of Columbia NPDES MS4 Permit. The Final Permit replaces the 2004 Permit, which expired on August 18, 2009 and has been administratively extended since that time. The Final Permit incorporates concepts and approaches developed from studies and pilot projects that were planned and implemented by the District under the 2000 and 2004 MS4 permits and modifying Letters of Agreement, and implements Total Maximum Daily Loads (TMDLs) that have been finalized since the prior permit was issued, including the Chesapeake Bay TMDL. A number of applicable measurable performance standards have been incorporated into the Final Permit. These and other changes between the 2004 Permit and today's Final Permit are reflected in a Comparison Document that is part of today's Permit issuance.

WATER QUALITY IN DISTRICT RECEIVING WATERS:

The District's *2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act*³ documents the serious water

1 A procedural history of Permit appeals can be viewed at the EPA Environmental Appeals Board web: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/b5e5b68e89edabe98525714f00731c6f!OpenDocument&Highlight=2,municipal.

2 Portions of the District are served by a combined sanitary and storm sewer system. The discharges from the combined sewer system are not subject to the MS4 permit, but are covered under NPDES Permit No. xxxx issued to the District of Columbia Water and Sewer Authority.

3 District Department of the Environment, *The District of Columbia Water Quality Assessment, 2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act* (hereinafter "2008 Integrated Report").

quality impairments in the surface waters in and around the District. A number of the relevant designated uses are not being met, *e.g.*, aquatic life, fish consumption, and full body contact, and there are a number of specific pollutants of concern that have been identified (for additional discussion on relevant TMDLs *see* Section 4.10 of this Final Fact Sheet).

Commenters on the Draft Permit expressed some frustration over very slow progress or even lack of progress after a decade of implementation of the MS4 program and even longer for other water quality programs. EPA appreciates this concern. Although the District's receiving waters are affected by a range of discharge sources, discharges from the MS4 are a significant contributor of pollutants and cause of stream degradation. EPA also recognizes, however, that stormwater management efforts that achieve a reversal of the ongoing degradation of water quality caused by urban stormwater discharges entail a long term, multi-faceted approach.

Consistent with the federal stormwater regulations for characterizing discharges from the MS4 (40 C.F.R. §122.26(d)(2)(iii)), the first two permit terms for the District's MS4 program required end-of-pipe monitoring to determine the type and severity of pollutants discharging via the system. The monitoring program was not designed to evaluate receiving water quality *per se*, therefore detection of trends or patterns was not reasonably possible. Today's Final Permit includes requirements for a Revised Monitoring Program, and one of the objectives for the program is to use a suite of approaches and indicators to evaluate and track water quality over the long-term (*see* discussion of Section 5.1 in this Final Fact Sheet).

There have been identified improvements in some areas. For example the *2008 Integrated Report* noted improvements in the diversity of submerged aquatic vegetation in the Potomac River, as well as improvements in fish species richness in Rock Creek. Biota metrics are often the best indicators of the integrity of any aquatic system.

EPA also notes that there are a variety of indirect measures indicative of improvement. The federal stormwater regulations foresaw the difficulty, especially in the near-term, of detecting measurable improvement in receiving waters, and relied instead on indirect measures, such as estimates of pollutant load reductions (40 C.F.R. §122.26(d)(2)(v)). The District documents these types of indirect measures in its annual reports, *e.g.*, tons of solids collected from catch basin clean-outs, amount of household hazardous waste collected, number of trees planted, square footage of green roofs installed, and many other measures of success.⁴

EPA believes that documenting trends in water quality, whether improvements, no change, or even further degradation, is an important element of a municipal water quality program. Today's Final Permit recognizes this principle, both in the types of robust measures required as well as the transition to new monitoring paradigms. EPA encourages all interested parties to provide the District with input during the development of these program elements.

THIS FACT SHEET:

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/DC_IR_2008_Revised_9-9-2008.pdf

4 District MS4 Annual Reports can be found at: <http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495855.asp>

This Final Fact Sheet is organized to correspond with the chronological organization and numbering in today's Final Permit. Where descriptions or discussions may be relevant to more than one element of the Final Permit the reader will be referred to the relevant section(s).

To keep today's Final Fact Sheet of readable length, many of the elements included in the fact sheet published with the Draft Permit (Draft Fact Sheet) on April 21, 2010 have not been repeated, but are referenced. Readers are referred to the Draft Fact Sheet published with the Draft Permit for additional discussion on provisions that have been finalized as proposed.⁵ The Final Fact Sheet does discuss significant changes since the 2004 Permit (even if discussed in the Draft Fact Sheet). The Final Fact Sheet also contains additional explanation of the Final Permit where commenters requested additional clarification. In addition, this Final Fact Sheet explains modifications to the Final Permit where provisions were changed in response to comments.

In many cases EPA made a number of very simple modifications to the Final Permit, *e.g.*, a word, phrase, or minor reorganization, simply for purposes of clarification. These modifications were not intended to change the substance of the permit provisions, only to clarify them. Most of those types of edits are not discussed in this Final Fact Sheet, but EPA has provided a Comparison Document of the Draft and Final Permits for readers who would like that level of detail.

Many commenters noted that the Draft Permit was not logically organized. EPA agrees. The major reorganization principles include:

- 1) There is a new Section 3, Stormwater Management Program (SWMP) Plan consolidating the various plans, strategies and other documents developed in fulfillment of permit requirements.
- 2) All implementation measures, *i.e.*, those stipulating management measures and implementation policies, are included in Section 4 of today's Final Permit. This includes "Source Identification" elements (Section 3 in the Draft Permit) and "Other Applicable Provisions" elements (Section 8 in the Draft Permit), which included TMDL requirements.
- 3) All monitoring requirements are consolidated in Section 5 of the Final Permit.
- 4) All reporting requirements are consolidated in Section 6 of the Final Permit.

EPA also refers readers to the Responsiveness Summary released today along with the Final Permit and Final Fact Sheet, for responses to comments and questions received on the Draft Permit. That document contains additional detailed explanations of the rationale for changes made to the Draft Permit in the Final Permit.

Finally, EPA made significant effort to avoid appending or incorporating by reference other documents containing permit requirements into the Final Permit. In the interest of clarity

⁵ The Permit and Fact Sheet proposed on April 21, 2010 can be viewed at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html

and transparency EPA, to the extent possible, has included all requirements directly in the permit. Thus, EPA reviewed a variety of documents with relevant implementation measures, *e.g.*, TMDL Implementation Plans and the 2008 Modified Letter of Agreement to the 2004 permit⁶, and translated elements of those plans and strategies into specific permit requirements that are now contained in the Final Permit. This Fact Sheet provides an explanation of the sources of provisions that are significant and are a direct result of one of those strategies.

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

(1.2 Authorized Discharges): The Final Permit authorizes certain non-stormwater discharges, including discharges from water line flushing. One commenter noted that many of these discharges, especially from potable water systems, contain concentrations of chlorine that may exceed water quality standards. EPA agrees, and has therefore clarified that dechlorinated water line flushing is authorized to be discharged under the Final Permit.

(1.4 Discharge Limitations): Comments on the language in Part 1.4 varied widely. Some commenters did not believe it was reasonable to require discharges to meet water quality standards. Other commenters believed this to be an unambiguous requirement of the Clean Water Act.

Today's Final Permit is premised upon EPA's longstanding view that the MS4 NPDES permit program is both an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance. *See generally*, "National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges," 55 F.R. 47990 (Nov. 16, 1990).

EPA is aware that many permittees, especially those in highly urbanized areas such as the District, likely will be unable to attain all applicable water quality standards within one or more MS4 permit cycles. Rather the attainment of applicable water quality standards as an incremental process is authorized under section 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii), which requires an MS4 permit "to reduce the discharge of pollutants to the maximum extent practicable" (MEP) "and such other provisions" deemed appropriate to control pollutants in municipal stormwater discharges. To be clear, the goal of EPA's stormwater program is attainment of applicable water quality standards, but Congress expected that many municipal stormwater dischargers would need several permit cycles to achieve that goal.

Specifically, the Agency expects that attainment of applicable water quality standards in waters to which the District's MS4 discharges, requires staged implementation and increasingly more stringent requirements over several permitting cycles. During each cycle, EPA will continue to review deliverables from the District to ensure that its activities constitute sufficient progress toward standards attainment. With each permit reissuance EPA will continue to increase

⁶ District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

stringency until such time as standards are met in all receiving waters. Therefore today's Final Permit is clear that attainment of applicable water quality standards and consistency with the assumptions and requirements of any applicable WLA are requirements of the Permit, but, given the iterative nature of this requirement under CWA Section 402(p)(3)(B)(iii), the Final Permit is also clear that "compliance with all performance standards and provisions contained in the Final Permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term" (Section 1.4).

EPA believes that permitting authorities have the obligation to write permits with clear and enforceable provisions and thus the determination of what is the "maximum extent practicable" under a permit is one that must be made by the permitting authority and translated into provisions that are understandable and measurable. In this Final Permit EPA has carefully evaluated the maturity of the District stormwater program and the water quality status of the receiving waters, including TMDL wasteload allocations. In determining whether certain measures, actions and performance standards are practicable, EPA has also looked at other programs and measures around the country for feasibility of implementation. Therefore today's Final Permit does not qualify any provision with MEP thus leaving this determination to the discretion of the District. Instead each provision has already been determined to be the maximum extent practicable for this permit term for this discharger.

EPA modified the language in the Final Permit to provide clarity on the expectations consistent with the preceding explanation. Specifically Section 1.4.2 of the Final Permit requires that discharges 'attain' applicable wasteload allocations rather than just 'be consistent' with them, since the latter term is somewhat ambiguous.

In addition, the general discharge limitation 'no increase in pollutant loadings from discharges from the MS4 may occur to receiving waters' was removed because of the difficulty in measuring, demonstrating and enforcing this provision. Instead, consistent with EPA's belief that the Final Permit must include all of the enforceable requirements that would achieve this principle, the following discharge limitation is substituted: "comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit."

In addition, EPA made the following modifications: "Compliance with the performance standards and provisions contained in Parts 2 through 8 of this permit shall constitute adequate progress towards compliance with DCWQS and WLAs for this permit term" (*underlined text added*) (Section 1.4 of the Final Permit). EPA eliminated circularity with the addition of "Parts 2 through 8", clarifying that this requirement does not circle back to include the statements in 1.4.1 and 1.4.2, but rather interprets them. Also, although WLAs are a mechanism for attainment of water quality standards, EPA added the specific language "and WLAs" to make this concept explicit rather than just implicit. In addition this revised language emphasizes that the specific measures contained in the Final Permit, while appropriate for this permit term, will not necessarily constitute full compliance in subsequent permit terms. It is the expectation that with each permit reissuance, additional or enhanced requirements will be included with the objective

of ensuring that MS4 discharges do not cause or contribute to an exceedance of applicable water quality standards, including attainment of relevant WLAs.

2. LEGAL AUTHORITY, RESOURCES, AND STORMWATER PROGRAM ADMINISTRATION

(2.1 Legal Authority): Several commenters pointed out that there were a number of requirements in the Draft Permit without clear compliance schedules or deadlines, or with deadlines that did not correspond well to others in the permit. In the Final Permit, EPA has made several revisions to address these comments. For example, EPA changed a requirement that deficiencies in legal authority must be remedied “as soon as possible” to a 120-day requirement for deficiencies that can be addressed through regulation, and two years for deficiencies that require legislative action (Section 2.1.1). Also, EPA increased the compliance schedule for updating the District’s stormwater regulation from twelve months to eighteen months, *id.*, so that this action could be adequately coordinated with the development of the District’s new offsite mitigation/payment-in-lieu program (for more discussion see Section 4.1.3 below).

(2.2 Fiscal Resources): One commenter suggested eliminating the reference to the District’s Enterprise Fund since funding was likely to come from a number of different budgets within the District. EPA agrees with this comment and has removed this reference.

On the other hand, many commenters noted that the implementation costs of the District’s stormwater program will be significant. EPA agrees. The federal stormwater regulations identify the importance of adequate financial resources [40 C.F.R. §122.26(d)(1)(vi) and (d)(2)(vi)]. In addition, after seeing notable differences in the caliber of stormwater programs across the country, EPA recognizes that dedicated funding is critical for implementation of effective MS4 programs.^{7,8,9} In 2009 the District established, and in 2010 revised, an impervious-based surface area fee for service to provide core funding to the stormwater program¹⁰ (understanding that stormwater-related financing may still come from other sources as they fulfill multiple purposes, *e.g.*, street and public right-of-way retrofits). In conjunction with the 2010 rule-making to revise the fee the District issued a Frequently Asked Questions document¹¹ that indicates the intent to restrict this fee to its original purpose, *i.e.*, dedicated funding to implement the stormwater program and comply with MS4 permit requirements. EPA believes this action is essential, and he expects that the District will maintain a dedicated source of funding for the stormwater program.

7 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

8 National Association of Flood and Stormwater Agencies, Funded by EPA, *Guidance for Municipal Stormwater Funding* (2006) <http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf>

9 EPA, *Funding Stormwater Programs* (2008) http://www.epa.gov/npdes/pubs/region3_factsheet_funding.pdf

10 District of Columbia, Rule 21-566 Stormwater Fees, <http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleID=474056>

11 District of Columbia, FAQ Document *Changes to the District’s Stormwater Fee* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/Stormwater_Fee_FAQ_10-5-10_-final.pdf

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

A number of commenters were confused by the wide variety of plans, strategies and other written documents required by the Draft Permit. A number of commenters were also concerned about public access to several of these documents.

In today's Final Permit EPA is clarifying that any written study, strategy, plan, schedule or other element, existing or new, is part of the District Stormwater Management Program Plan. It is EPA's intent that all elements of the program be described in this central 'Plan'. This does not mean that the Plan cannot consist of separate documents. EPA understands that stand-alone elements may aid in implementation in certain situations. However, EPA is clarifying that all such documents are inherent components of the Plan.

To address the accessibility issue EPA is also requiring that the most current version of the Plan be posted on the District website. As such, all elements that may be documented in separate documents and deliverables must be posted at this location (a hyperlink to any element of the program in a different document is sufficient).

Moreover, today's Final Permit requires the District to public notice a fully updated Plan (to include all existing and new elements required by the Final Permit) within three years of the effective date of this Final Permit, and to then submit that Plan to EPA within four years of the effective date of the Final Permit. This schedule will enable this evaluation of the Plan to be part of EPA's evaluation of the Districts stormwater management program in preparation for the next reissuance of the permit.

The Final Permit requires the District to develop a number of new initiatives. Many commenters raised concerns about the rigor and suitability of these new elements in the absence of a requirement for public input, and in the absence of EPA review and approval. In light of those concerns EPA reviewed all elements of the Draft Permit, and where appropriate has added requirements to the Final Permit both for public notice and opportunity to comment and for submittal to EPA for review and approval. Not every new element has been subjected to this requirement. However, EPA agrees that the opportunity for the public and EPA to review new program elements that will become major components of the stormwater management program is reasonable. Thus, for provisions that EPA believes will be important foundations of the program in years to come, EPA has added a requirement for public notice and EPA review and approval. A new Table 1 in the Final Permit summarizes the elements that must now be submitted to EPA for review and approval.

TABLE 1
Elements Requiring EPA Review and Approval

Element	Submittal Date (from effective date of this permit)
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.6)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

(4.1 Standard for Long-Term Stormwater Management): One of the fundamental differences between today’s Final Permit and earlier permits is the inclusion of measurable requirements for green technology practices, sometimes referred to as “low-impact development” or “green infrastructure.” These requirements, which include green roofs, enhanced tree plantings, permeable pavements, and a performance standard to promote practices such as bioretention and water harvesting, are designed to increase the effectiveness of stormwater controls by reducing runoff volumes and associated pollutant loads.^{12,13} In past years, stormwater management requirements in permits did not include clear performance goals, numeric requirements or environmental objectives. Today’s Final Permit stipulates a specific standard for newly developed and redeveloped sites, and also emphasizes the use of “green infrastructure” controls to be used to meet the performance standard. These permit requirements are intended to improve the permit by providing clarity regarding program performance and promoting the use of technologies and strategies that do not rely solely on end-of-pipe detention measures to manage runoff. EPA notes that much of this emphasis is based on changing paradigms in stormwater science, technology and policy (see discussion below), but also points out that the groundwork for this framework was laid during the prior permit term, and all of the green infrastructure elements agreed to in the 2008 Modified Letter of Agreement to the 2004 Permit.¹⁴

In the natural, undisturbed environment precipitation is quickly intercepted by trees and other vegetation, or absorbed by soils and humic matter on the surface of the ground where it is

12 The performance of green infrastructure control measures is well-established through numerous studies and reports, many of which are available at <http://cfpub2.epa.gov/npdes/greeninfrastructure/research.cfm#research>

13 Jay Landers, *Stormwater Test Results Permit Side-by-Side Comparisons of BMPs* (2006) Civil Engineering News http://www.unh.edu/erg/civil_eng_4_06.pdf

14 District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222*, (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

used by plants, becomes baseflow (shallow groundwater feeding waterways) or infiltrates more deeply to aquifers. During most storms very little rainfall becomes stormwater runoff where the landscape is naturally vegetated or in cases where there are permeable soils. Runoff generally only occurs with larger precipitation events, which constitute a very small proportion of the storms that occur in Washington, DC. In contrast to natural settings, traditional development practices cover large areas of the ground with impervious surfaces such as roads, driveways, sidewalks, and buildings. In addition, the remaining soils are often heavily compacted and are effectively impervious. Under developed conditions, stormwater runs off or is channeled away even during small precipitation events. The collective force of the increased stormwater flows entering the MS4 and discharging through outfalls into receiving streams scours streambeds, erodes stream banks, and causes large quantities of sediment and other entrained pollutants, such as metals, nutrients and trash, to enter the water body each time it rains^{15,16,17}. Stormwater research generally shows a high correlation between the level of imperviousness in a watershed and the degree of overall degradation of water quality and habitat. This principle is so well-settled that EPA has not included individual study results here, but refers interested readers to an excellent compendium of relevant studies compiled by the Maryland Department of Natural Resources at <http://www.dnr.state.md.us/irc/bibs/effectsdevelopment.html>.

To date stormwater management approaches generally have been focused primarily on flood management, in particular extended detention controls, such as wet ponds or dry detention basins, or on in-pipe or end-of-pipe treatment systems. Extended detention approaches are intended to reduce downstream flooding to the extent necessary to protect the public safety and private and public property. End-of-pipe systems are intended to filter or settle specific pollutants, but typically do not reduce the large suite of pollutants in storm water, nor do anything to address degradation attributable to increased discharge volumes. These approaches occurred largely by default since stormwater permits and regulations, including those with water quality objectives, did not stipulate specific, measurable standards or environmental objectives. In addition, water quality was not the primary concern during the early evolution of stormwater management practices.

There are multiple potential problems with extended detention as a water quality management practice, including the fact that receiving stream dynamics are generally based on balances of much more than just discharge rates.¹⁸ Stream stability, habitat protection and water quality are not necessarily protected by the use of extended detention practices and systems. In fact the use of practices such as wet detention basins often results in continued stream bank

15 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

16 Schueler, Thomas R., *The Importance of Imperviousness* (2000) Center for Watershed Protection, [http://yosemite.epa.gov/R10/WATER.NSF/840a5de5d0a8d1418825650f00715a27/159859e0c556f1c988256b7f007525b9/\\$FILE/The%20Importance%20of%20Imperviousness.pdf](http://yosemite.epa.gov/R10/WATER.NSF/840a5de5d0a8d1418825650f00715a27/159859e0c556f1c988256b7f007525b9/$FILE/The%20Importance%20of%20Imperviousness.pdf)

17 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. [http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/\\$file/Fundamentals_full_manual_lowres.pdf?OpenElement](http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement)

18 Low Impact Development Center, *A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption* (2007) http://pepi.ucdavis.edu/mapinfo/pdf/CA_LID_Policy_Review_Final.pdf

destabilization and increased pollutant loadings of sediment, phosphorus and other pollutants due to bank and channel erosion. Numerous studies have documented the physical, chemical and biological impairments of receiving waters caused by increased volumes, rates, frequencies, and durations of stormwater discharges, and the critical importance of managing stormwater flows and volumes to protecting and restoring our nation's waters^{19,20}.

Traditional stormwater management is very heavily focused on extended detention approaches, *i.e.*, collecting water short-term (usually in a large basin), and discharging it to the receiving water over the period of one to several days, depending on the size of the storm. Extended detention practices are first and foremost designed to prevent downstream flooding and not to protect downstream channel stability and water quality. For decades, water quality protection has been a secondary goal, or one omitted entirely during the design of these facilities. Over time it has become apparent through research and monitoring that these traditional practices do not effectively protect the physical, chemical or biological integrity of receiving waters²¹. Furthermore, operation and maintenance of these systems to ensure they perform as designed requires a level of managerial and financial commitment that is often not provided, further diminishing the effectiveness of these practices from a water quality performance perspective. A number of researchers have documented that extended detention practices fail to maintain water quality, downstream habitat and biotic integrity of the receiving waters.^{22,23,24,25} As a result, today's Final Permit shifts the District's practices from extended detention approaches to water quality protection approaches based on retention of discharge volumes and reduced pollutant loadings.

(4.1.1 Standard for Stormwater Discharges from Development): The 2008 National Research Council Report (NRC Report) on urban stormwater confirmed that current stormwater control efforts are not fully adequate. Three of the NRC Report's findings on stormwater management approaches are particularly relevant:

19 Daren M Carlisle, David M Wolock, and Michael R Meador, *Alteration of streamflow magnitudes and potential ecological consequences: a multiregional assessment*, Front Ecol Environ, (2010)

20 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

21 EPA, *Protecting Water Quality from Urban Runoff* (2003) http://www.epa.gov/npdes/pubs/nps_urban-facts_final.pdf

22 C.R. MacRae, *Experience from Morphological Research on Canadian Streams: Is Control of the Two Year Frequency Runoff Event the Best Basis for Stream Channel Protection?* (1997) in *Effects of Watershed Development and Management on Aquatic Ecosystems*, ASCE

23 R. Horner, C. May, E. Livingston, D. Blaha, M. Scoggins, J. Tims & J. Maxted, *Structural and Nonstructural BMPs for Protecting Streams* (2002) Seventh Biennial Stormwater Research & Watershed Management Conference <http://www.p2pays.org/ref/41/40364.pdf>

24 D.B. Booth & C.R. Jackson, *Urbanization of Aquatic Systems – Degradation Thresholds, Stormwater Detention and the Limits of Mitigation* (1997) *Journal of the American Water Resources Association* 22(5) http://clear.uconn.edu/projects/TMDL/library/papers/BoothJackson_1997.pdf

25 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. [http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEEE0/\\$file/Fundamentals_full_manual_lowres.pdf?OpenElement](http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement)

- 1) Individual controls on stormwater discharges are inadequate as the sole solution to stormwater impacts in urban watersheds;
- 2) Stormwater control measures such as product substitution, better site design, downspout disconnection, conservation of natural areas, and watershed and land-use planning can dramatically reduce the volume of runoff and pollutant loadings from new development; and
- 3) Stormwater control measures that harvest, infiltrate, and evapotranspire stormwater are critical to reducing the volume and pollutant loading of storms.

The NRC Report points out the wisdom of managing stormwater flow not just for the hydrologic benefits as described above, but because it serves as an excellent proxy for pollutants, *i.e.*, by reducing the volume of stormwater discharged, the amount of pollutants typically entrained in stormwater will also be reduced. Reductions in the number of concentrated and erosive flow events will result in decreased mobilization and transport of sediments and other pollutants into receiving waters. The NRC Report also noted that it is generally easier and less expensive to measure flow than the concentration or load of individual pollutant constituents. For all of these reasons EPA has chosen to use flow volume as the management parameter to implement policies, strategies and approaches.

The objective of effective stormwater management is to replicate the pre-development hydrology to protect and preserve both the water resources onsite and those downstream by eliminating or reducing the amount of both water and pollutants that run off a site, enter the MS4, and ultimately are discharged into adjacent water bodies. The fundamental principle is to employ systems and practices that use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near to where it falls to earth.

Retaining the volume of all storms up to and including the 95th percentile storm event is approximately analogous to maintaining or restoring the pre-development hydrology with respect to the volume, rate, and duration of the runoff for most sites. In the mid-Atlantic region the 95th percentile approach represents a volume that appears to reasonably represent the volume that is fully infiltrated in a natural condition and thus should be managed onsite to restore and maintain this pre-development hydrology for the duration, rate and volume of stormwater flows. This approach also employs and/or mimics natural treatment and flow attenuation methods, *i.e.*, soil and vegetation, that existed on the site before the construction of infrastructure (*e.g.*, building, roads, parking lots, driveways). The 95th percentile volume is not a “magic” number; there will be variation among sites based on site-specific factors when replicating predevelopment hydrologic conditions. However, this metric represents a good approximation of what is protective of water quality on a watershed scale, it can be easily and fairly incorporated into standards, and can be equitably applied on a jurisdictional basis.

In the Draft Permit EPA proposed two sets of performance standards to be implemented by the District: on-site retention of the 90th percentile volume, or 1.2” for all non-federal projects, and on-site retention of the 95th percentile volume, or 1.7” for all federal projects.

In determining ‘maximum extent practicable’ for discharges from development involving

federal facilities EPA considered several factors in the Draft Permit:

- 1) Energy Independence and Security Act (EISA) Section 438 and EPA Guidance²⁶: Entitled “Storm water runoff requirements for federal development projects,” EISA section 438 provides: “The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.”

Guidance for federal agencies to implement EISA section 438 has been in place since December 2009, and sets forth two optional approaches to meeting the statutory requirements: a performance objective to retain the volume from the 95th percentile storm on site for any federally sponsored new development or redevelopment project and a site-specific hydrologic analysis to determine the pre-development runoff conditions and to develop the site such that the post-development hydrology replicates those conditions “to the maximum extent technically feasible.”

- 2) Executive Orders:
 - a. Executive Order 13508 - Chesapeake Bay Protection and Restoration: Calling the Chesapeake Bay a national treasure, E.O. 13508, issued May 12, 2009, establishes a mandate for federal leadership, action and accountability in restoring the Bay. Among the provisions of the Executive Order, section 202(c) directs the strengthening of stormwater management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed. In addition, section 501 directs federal agencies to implement controls as expeditiously as practicable on their own properties. As required by section 502, EPA issued guidance for federal land management practices to protect and restore the Bay, which includes guidance for managing existing development, as well as redevelopment, new development. Thus federal agencies have an executive directive to be leaders in stormwater management in the District and throughout the Chesapeake Bay watershed.²⁷
 - b. Executive Order 13514 - Federal Leadership in Environmental, Energy, and Economic Performance E.O. 13514, issued Oct. 5, 2009, directs the federal government to “lead by example” and includes a requirement for federal agencies to implement EPA’s EISA Section 438 guidance (see Sections 2(d)(iv)²⁸ and 14).

²⁶ EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009)

http://www.epa.gov/owow_keep/nps/lid/section438/

²⁷ EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban and Suburban, (2010) 841-R-10-002 (http://www.epa.gov/owow_keep/NPS/chesbay502/pdf/chesbay_chap03.pdf)

²⁸ Sec. 2. Goals for Agencies. In implementing the policy set forth in Section 1 of this order, and preparing and implementing the Strategic Sustainability Performance Plan called for in Section 8 of this order, the head of each agency shall: . . . (d) improve water use efficiency and management by: . . . (iv) implementing and

- 3) **Water Quality:** These performance standards are appropriate as water quality-based effluent limitations in the Final Permit. In order to meet the necessary water quality requirements of the Clean Water Act, and to be consistent with the assumptions and requirements of the wasteload allocations for the Chesapeake Bay TMDL, EPA has determined that this performance standard is necessary. In fact, the District's final Phase I WIP acknowledges reasonable assurance demonstration for meeting its obligations to implement the Chesapeake Bay TMDL on an expectation that federal new development and redevelopment projects will achieve a 1.7" stormwater retention objective²⁹.

EPA concluded in the Draft Permit, and maintains in the Final Permit, that in this first permit in which a performance standard is being required, a retention standard of 1.2" represents the "maximum extent practicable" (MEP) for the District to implement at this time. In the District of Columbia area the 90th percentile event volume is estimated at 1.2 inches. This volume was calculated from 59 years (1948-2006) of rainfall data collected at Reagan National Airport using the methodology detailed in the Energy Independence and Security Act (EISA) Section 438 Guidance³⁰. EPA expects that the performance objective shall be accomplished largely by the use of practices that infiltrate, evapotranspire and/or harvest and use rainwater.

EPA's MEP determination included evaluating what has been demonstrated to be feasible in the mid-Atlantic region as well as in other parts of the country. Because on-site retention of the 90th percentile rainfall event volume and analogous approaches have been successfully implemented in other locations across the nation as requirements of stormwater permits, state regulations and local standards^{31,32,33,34,35,36,37,38,39} and under a wide variety of climates and

achieving the objectives identified in the stormwater management guidance referenced in Section 14 of this order. Sec. 14. Stormwater Guidance for Federal Facilities. Within 60 days of the date of this order, the Environmental Protection Agency, in coordination with other Federal agencies as appropriate, shall issue guidance on the implementation of Section 438 of the Energy Independence and Security Act of 2007 ([42 U.S.C. 17094](#)).

²⁹ District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

³⁰ EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009)

<http://www.epa.gov/owow/keep/nps/lid/section438/>

³¹ EPA, *The Municipality of Anchorage and the Alaska Department of Transportation and Public Facilities Municipal Separate Storm Sewer System Permit*, NPDES No. AKS052558 (2010)

[http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/MS4+requirements+-+Region+10/\\$FILE/ATTCZX11/AKS052558%20FP.pdf](http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/MS4+requirements+-+Region+10/$FILE/ATTCZX11/AKS052558%20FP.pdf)

³² California Regional Water Quality Control Board Los Angeles Region, *Ventura County Municipal Separate Storm Sewer System Permit*, NPDES No. CAS004002 (2009)

http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/ventura_ms4/Final_Ventura_County_MS4_Permit_Order_No.09-0057_01-13-2010.pdf

³³ Montana Department of Environmental Quality, *General Permit for Stormwater Discharge Associated with Small Municipal Separate Storm Sewer System*, NPDES No. MTR040000 (2010)

<http://www.deq.mt.gov/wqinfo/mpdes/StormWater/ms4.mcp>

³⁴ Tennessee Department of Environment and Conservation, *General Permit for Discharges from Small Municipal Separate Storm Sewer Systems*, NPDES No. TNS000000, (2010)

http://state.tn.us/environment/wpc/stormh2o/finals/tns000000_ms4_phase_ii_2010.pdf

conditions, EPA considers this performance standard to be proven and therefore ‘practicable’ at this point in time. EPA believes that application of this performance standard will result in a significant improvement to the *status quo* and that it will provide notable water quality benefits. This approach will also provide a sound foundation and framework for future management approaches, strategies, measures and practices as the program evolves over subsequent permit cycles. In this context, EPA notes that there may be a need to improve upon this standard in the future, and expects to evaluate implementation success, performance of practices and the overall program, and water quality in the receiving waters when determining whether or not to modify this requirement in a future permit cycle.

EPA received a number of comments on these proposed development performance standards. Many commenters supported this approach. A few were opposed, largely to the numbers rather than the retention framework. Only one federal agency, the Department of Defense, to whom the 95th percentile standard would apply, opposed this provision, on the basis that they should not be subject to the higher standard.

In response to comments EPA revised the Final Permit to require the District to implement a performance standard of on-site retention of 1.2” for all development projects, regardless of who owns or operates the development. EPA’s rationale for including a single performance standard for all development projects is based on the fact that this permit is issued to the District of Columbia and the MEP determination must be based on what is practicable for that permittee even though certain property owners discharging to the District’s MS4 may have the ability as well as the mandate to achieve more. EPA concludes that it would be not be inappropriate to include the 1.7” performance standard in a permit to a federal permittee. This permit, however, is being issued to a non-federal permittee.

Therefore today’s Final Permit includes a performance standard for stormwater discharges from development that disturbs an area of land greater than or equal to 5,000 square feet. The requirement must be in effect 18 months from today. The Permit requires the design, construction, and maintenance of stormwater management practices to retain rainfall onsite, and

35 West Virginia Department of Environmental Protection, General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, NPDES WV0116025 (2009) <http://www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Documents/WV%20MS4%202009%20General%20Permit.pdf>

36 North Carolina Department of Environment and Natural Resources, *General Permit to Construct Operate and Maintain Impervious Areas and BMPs Associated with a Residential Development Disturbing Less than 1 Acre*, State Permit No. SWG050000 (2008) http://portal.ncdenr.org/c/document_library/get_file?uuid=724171cc-c208-4f39-a68c-b4cd84022cd9&groupId=38364

37 State of Maryland, *Stormwater Management Act of 2007*, Environment Article 4 §201.1 and §203 <http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Pages/Programs/WaterPrograms/SedimentandStormwater/swm2007.aspx>

38 City of Philadelphia, *Stormwater Regulations*, §600.0 Stormwater Management (2006) <http://www.phillyriverinfo.org/WICLibrary/StormwaterRegulations.pdf>

39 EPA, See Chapter 3, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

prevent the off-site discharge of the rainfall volume from all events less than or equal to the 90th percentile rainfall event.

The District's Phase I Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL⁴⁰ based its proposed nutrient and sediment reductions, and the associated reasonable assurance demonstration, on these performance standards, i.e., 1.2" for non-federal projects and 1.7" for federal projects. In establishing the Chesapeake Bay TMDL, EPA used the information in the Bay jurisdictions' final Phase I WIPs, including that of the District, where possible. Thus the wasteload allocations (WLAs) in the TMDL⁴¹ are based, in part, on the expectation that all development in the District will be subject to these standards.

EPA notes that all federal facilities still must comply with the EISA requirements. The District will track the performance of federal development projects subject to the District's stormwater regulations, and therefore document those achieving better than 1.2" onsite retention. However, the District cannot, nor should they be expected to, enforce the EISA requirements.

EPA dropped the option for determination of the predevelopment runoff conditions based on a full hydrologic and hydraulic analysis of the site. EISA guidance had provided this option to federal facilities and EPA did not want to provide an *a priori* limitation to federal projects in the Draft Permit, but rather provide the District with the flexibility to include it if they determined it to be administratively feasible. However, since the Final Permit no longer includes an additional requirement for federal facilities, this provision is no longer necessary to provide federal facilities options consistent with EISA. With respect to non-federal facilities, in the seventeen months since the Draft Permit was proposed the District has continued with the process of finalizing their stormwater regulations, and has determined that inclusion of this option is not necessary or reasonable, and EPA concurs.

Several commenters raised the issue of costs associated with implementation of the performance standard. EPA has responded by noting that there are many locations where this stormwater management framework has already been implemented (*see* footnote 22), and also where costs have been well documented to be competitive or instances where infrastructure costs were less expensive because of avoided costs, *e.g.*, reduced infrastructure, narrower roads and otherwise fewer impervious surfaces, reduced or eliminated curbs and gutters, no or fewer buried storm sewers. In addition, where cost-benefit analyses have been conducted, green infrastructure practices are even more cost effective because of the wide array of additional benefits⁴² that do not accrue when traditional stormwater management practices are used.^{43,44,45,46,47,48,49,50,51,52,53,54}

40 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

41 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010)

<http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

42 EPA, Managing Wet Weather with Green Infrastructure website, Benefits: (http://cfpub2.epa.gov/npdes/home.cfm?program_id=298)

43 LimnoTech, *Analysis of the Pollution Reduction Potential of DC Stormwater Standards* (2009)

44 EPA, *Reducing Stormwater Costs through Low Impact Development Strategies and Practices* (2007)

Several commenters took issue with the inclusion of any numeric performance standard for discharges from development. As discussed above EPA believes that stormwater discharge permits should include clear and enforceable standards, and where feasible, numeric limits are preferred. As discussed above, for the purpose of requiring the permittee to ensure adequate management of discharges from development, a numeric performance standard is a proven means of establishing a clear and enforceable requirement. EPA recognizes that there will be development projects that may not be able to meet the performance standard on site because of site conditions or site activities that preclude the use of extensive green infrastructure practices. Thus as proposed in the Draft Permit, the Final Permit requires the District to develop an alternative means of compliance for development projects under these circumstances (*see* discussion of Section 4.1.3 Off-Site Mitigation and/or Fee-in-Lieu for all Facilities).

In July 2010 EPA Region III issued *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*.⁵⁵ This document provides direction to all NPDES permitting authorities in the Region and establishes expectations for the next generation of MS4 permits. Based on many of the reasons already articulated in this Final Fact Sheet, EPA directed states to incorporate performance-based standards into permits and regulations with the objective of maintaining or restoring a pre-development hydrologic site condition for newly developed and redeveloped sites. In fact most states with authorized NPDES permit programs in the Chesapeake

<http://www.epa.gov/owow/NPS/lid/costs07/>

45 Report to Natural Resources Defense Council and Waterkeeper Alliance, *Economic Costs, Benefits and Achievability of Stormwater Regulations for Construction and Development Activities* (2008)

46 Meliora Environmental Design LLC, *Comparison of Environmental Site Design for Stormwater Management for Three Redevelopment Sites in Maryland* (2008)

47 City of Portland Environmental Services, *Cost-Benefit Evaluation of Ecoroofs* (2008)

<http://www.portlandonline.com/bes/index.cfm?a=261053&c=50818>

48 Natural Resources Defense Council, *Rooftops to Rivers, Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006) <http://www.nrdc.org/water/pollution/rooftops/rooftops.pdf>

49 Riverkeeper, *Sustainable Raindrops* (2006) <http://www.riverkeeper.org/wp-content/uploads/2009/06/Sustainable-Raindrops-Report-1-8-08.pdf>

50 City of Philadelphia Water Department, *A Triple Bottom Line Assessment of Traditional and Green Infrastructure Options for Controlling CSO Events in Philadelphia's Watersheds* (2009)

http://www.epa.gov/npdes/pubs/gi_phil_bottomline.pdf

51 Richard R. Horner, *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices for Ventura County, and Initial Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area, and Supplementary Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area*, (2007)

http://docs.nrdc.org/water/files/wat_09081001b.pdf

52 J. Hathaway and W.F. Hunt. *Stormwater BMP Costs*. (2007)

www.bae.ncsu.edu/stormwater/PublicationFiles/DSWC.BMPcosts.2007.pdf.

53 Center for Neighborhood Technology and American Rivers, *The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits* (2010) <http://www.cnt.org/repository/gi-values-guide.pdf>

54 J. Gunderson, R. Roseen, T. Janeski, J. Houle, M. Simpson. *Cost-Effective LID in Commercial and Residential Development* (2011) Stormwater <http://www.stormh2o.com/march-april-2011/costeffective-lid-development-1.aspx>

55 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

Bay Watershed have incorporated numeric on-site retention standards into final or draft regulations or permits.

In addition, this provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit⁵⁶ in which the District committed to promulgate stormwater regulations that implement “Low Impact Development”, *i.e.*, measures that infiltrate, evapotranspire and harvest stormwater.

(4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking):
In Region III’s *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*, EPA emphasized the importance of establishing accountability measures around performance measures. The best standards will not provide the necessary environmental outcomes if they are not properly implemented, and the only way to ensure proper implementation is to ensure that stormwater control measures are properly designed and installed.

Today’s Final Permit requires the District to ensure that all codes and policies are consistent with the standards in the Final Permit, and to establish and maintain adequate site plan review procedures, and a post-construction verification process (such as inspections or submittal of as-builts) to ensure that controls are properly installed.

Ensuring that local codes, ordinances and other policies are consistent with the requirements of the permit is critical element of success. A number local governments attempting to implement green infrastructure measures have found their own local policies to be one of the most significant barriers⁵⁷, *e.g.*, parking codes that require over-sized parking lots, plumbing codes that don’t allow rainwater harvesting for indoor uses, or street design standards that prohibit the use of porous/pervious surfaces. EPA has published a document, the *Water Quality Scorecard*, to assist local governments in understanding and identifying these local policy barriers and also provides options for eliminating them.⁵⁸ EPA is not requiring the District to use the *Scorecard* or any other specific method, but recommends a systematic assessment of local policies in the context of the requirements of the Final Permit in order to comply with the provisions of this Section.

EPA and others have long recognized the importance of site plan review in ensuring that development projects are designed according to standards and regulations, and a verification process following construction that projects were constructed as designed and approved.^{59,60,61,62}

⁵⁶ District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008)

<http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

⁵⁷ National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

⁵⁸ EPA, *Water Quality Scorecard, Incorporating Green Infrastructure Practices and the Municipal, Neighborhood and Site Scales* (2009) http://www.epa.gov/smartgrowth/pdf/2009_1208_wq_scorecard.pdf

⁵⁹ EPA, *Post-Construction Plan Review, Menu of BMPs*
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=123

Most local governments, including the District, already have some form of site plan review and post-construction verification process for development projects. Today's Final Permit includes them as critical accountability elements of the District stormwater program.

In addition, today's Final Permit requires the District to track volume reductions from all projects. This is a critical element of determining whether wasteload allocations are being achieved.

One commenter noted that EPA had not imposed a clear compliance schedule for this requirement. The Final Permit includes a deadline of the end of the permit term for full compliance with this requirement, acknowledging that updating codes, ordinances and other policies may be a time-consuming process that typically requires consultation and support from elected officials, coordination amongst multiple departments and agencies, e.g., the Office of Planning, the Department of Transportation and the Department of the Environment, as well as public involvement.

(4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities): Today's Final Permit requires the District to establish a program for Off-site Mitigation and/or Fee-In-Lieu within 18 months of the effective date of the Final Permit. The Final Permit provides the District flexibility to develop a program with either one of those elements or both. Specifically the Permit states:

The program shall include at a minimum:

- 1) Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
- 2) Specific criteria for determining when compliance with the baseline requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
- 3) For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
- 4) The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

60 Center for Watershed Protection, *Managing Stormwater in Your Community, A Guide for Building an Effective Post-Construction Program* (2008) http://www.cwp.org/documents/cat_view/76-stormwater-management-publications/90-managing-stormwater-in-your-community-a-guide-for-building-an-effective-post-construction-program.html

61 EPA, *MS4 Permit Improvement Guide* (2010) http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

62 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

This provision is included in today's Final Permit in acknowledgement that meeting the performance standard in 4.1.1 may be challenging in some situations. The NRC Report noted that an offset system is critical to situations when on-site stormwater control measures are not feasible.⁶³ In cases where a full complement of onsite controls is not feasible, offsite practices should be employed that result in net improvements to watershed function and water quality at the watershed scale. The *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* contemplates offsets in MS4 programs.⁶⁴ EPA has also articulated expectations in the Chesapeake Bay TMDL that it expects the Bay jurisdictions to account for growth via offset programs that are consistent with Section 10 and Appendix S of the Chesapeake Bay TMDL.⁶⁵

EPA received numerous comments on this provision. No commenter was opposed to an offset program *per se*, but there were various opinions on how it should function. Because there was so much general interest in how this program would be shaped, EPA is responding to these comments by requiring the program be subject to public notice followed by submittal to and review by EPA. EPA believes this provides all of those with an interest in this program the opportunity to provide meaningful input. EPA will also review the program to ensure that it has adequate tracking and enforceability components, and meets the water quality objectives of the Final Permit. It is EPA's expectation that these mechanisms will be described by the permittee in the proposed implementation scheme. EPA emphasizes that accountability measures (*e.g.*, inspections, maintenance, tracking) will be critical to ensure the success of the program, and therefore the District's plan will be closely scrutinized for those measures prior to implementation.

The Final Permit includes an option for the District to include incentives for other environmental objectives, *e.g.*, carbon sequestration, in the offset program. As noted, because of the wide array of opinions EPA feels that consideration of some of these other environmental objectives deserve a full vetting by the community. The District is not required to include any incentives or credits along these lines in the program. If it chooses to do so, anything implemented to achieve those other environmental objectives must be subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls implemented in fulfillment of other permit requirements.

Finally, for the duration of this permit term, the Final Permit exempts District owned and operated transportation rights-of-way projects from the requirement to mitigate stormwater off-site or pay into a fee-in-lieu program for development projects where the on-site performance standard cannot be met. This decision was based on the District request for short-term relief while the District Department of Transportation develops new stormwater management design, construction, and operation and maintenance processes, protocols, requirements and

63 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

64 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

65 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

specifications for transportation systems and public rights of way. EPA notes that this exemption does not apply to other District owned projects.

(4.1.4 Green Landscaping Incentives Program): Green infrastructure regulatory and incentive programs are becoming common across the country.^{66,67} Landscaping requirements that provide flexibility and a suite of options from which to select appropriate green infrastructure practices and systems, e.g. Seattle's Green Factor⁶⁸, have proven to be quite popular with developers, land owners and municipal officials.

The green landscaping provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit⁶⁹ that articulated a long list of specific green infrastructure measures to be implemented, coupled with the commitment by the District to develop green infrastructure policies and incentives. Because these green landscaping provisions fill an important gap in the District's suite of green infrastructure-related policies, EPA specifically identified landscaping as an important area for development of incentives.

Other than general support EPA received little comment on this provision, thus the Final Permit has not been modified from the Draft Permit.

(4.1.5 Retrofit Program for Existing Discharges): Changes in land cover that occurred when urban and urbanizing areas were developed have changed both the hydrology and pollutant loadings to receiving waters and have led to water quality problems and stream degradation. In order to protect and restore receiving waters in and around the District stormwater volume and pollutant loadings from sites with existing development must be reduced. Due to historical development practices, most of these areas were developed without adequate stormwater pollutant reduction or water quality-related controls. To compensate for the lack of adequate stormwater discharge controls in these areas, EPA is requiring the District to include retrofit elements in the stormwater management program.^{70,71,72}

EPA has acknowledged the importance of including retrofit requirements in MS4 permits.^{73,74} The Chesapeake Bay TMDL allocations are founded on the expectation of

66 EPA, *Green Infrastructure Incentive Mechanisms*, Green Infrastructure Municipal Handbook Series, (2009) http://www.epa.gov/npdes/pubs/gi_munichandbook_incentives.pdf

67 EPA, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

68 City of Seattle, *Seattle Green Factor*, <http://www.seattle.gov/dpd/Permits/GreenFactor/Overview/>

69 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

70 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

71 Schueler, Thomas. *Urban Subwatershed Restoration Manual No. 1: An Integrated Framework to Restore Small Urban Watersheds* (2005)

72 EPA, *Green Infrastructure Retrofit Policies*, Managing Wet Weather with Green Infrastructure Municipal Handbook Series (2008) http://www.epa.gov/npdes/pubs/gi_munichandbook_retrofits.pdf

73 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001,

stormwater retrofits in the District (*see* Section 8 of the TMDL⁷⁵), based on actions outlined in the District's final Phase I WIP developed for the Chesapeake Bay TMDL.⁷⁶

EPA received quite a few comments on this set of requirements. Some commenters strongly approved of the retrofit provisions in the Draft Permit, while others expressed concerns.

Today's Final Permit requires the District to develop performance metrics for retrofits, using the performance standard in Section 4.1.1 as the starting point, *i.e.*, if projects can meet the environmental objectives specified in Part 4.1.1 they should. However, understanding the challenges associated with retrofitting some sites, the Final Permit allows that the performance metrics for retrofit projects may vary from the performance standard in 4.1.1, *e.g.*, different requirements may apply to differing sets of circumstances, site conditions or types of projects. EPA believes the most important first step in a robust retrofit program is to set stringent environmental objectives, thus the requirement to develop clear and specific performance standards. EPA fully expects the District to utilize this permit term to develop design, construction and operation and maintenance protocols to meet the requisite performance standards.

Several modifications were made to this provision:

- 1) Because there was so much interest in this provision EPA added a requirement for public notice.
- 2) Because there were so many opinions on how this program should function, EPA removed some of the criteria in the Final Permit to allow the community to shape the program. In exchange EPA included a requirement that the relevant performance metrics be submitted to EPA for review and approval.
- 3) The compliance schedule for development, public notice and submittal to EPA of performance metrics for a retrofit program has been extended from one year to 18 months at the request of the District. EPA believes the additional time will allow better coordination of the offset program with the District's stormwater regulations (also with an 18 month compliance schedule), and allow adequate time for a public notice process and an EPA review.

Also included in the permit is a requirement that the District must work with federal agencies to document federal commitments to retrofitting their properties. Consistent with Executive Order 13508 on the Chesapeake Bay, the federal strategies developed pursuant thereto, and in fulfillment of the Chesapeake Bay TMDL, federal agencies have obligations to

http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

⁷⁴ EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

⁷⁵ EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

⁷⁶ District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)

http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

implement substantive stormwater controls. In order to accurately account for loads from federal lands that discharge through the District MS4 system, the District needs to be able to track the pollutant reductions resulting from federal actions. To do so the District will need to identify federal facilities and properties and work with federal agencies to identify retrofit opportunities on federal lands and properties and track progress in retrofitting these lands and properties.

In addition, the Final Permit requires the District to make pollutant load and volume reduction estimates for all retrofit projects for the nine pollutants in Table 4, and by each of the major District watersheds (Anacostia River, Rock Creek, Potomac River).

The Final Permit requires the District to implement retrofits to manage runoff from 18,000,000 square feet of impervious surfaces during the permit term. Of that total, 1,500,000 square feet must be in transportation rights-of-way. Although these initial drainage area objectives are not especially aggressive, EPA believes that a strong foundation for the retrofitting program must first be established. EPA can then set more aggressive drainage area objectives in subsequent permits. In its comments on the Draft Permit the District contended that the requirement in the Draft Permit for the retrofitting of 3,600,000 square feet of impervious surfaces in transportation rights-of-way was more than it could accomplish in a single permit term. The District suggested 1,500,000 square feet, almost 60% less than what was required in the Draft Permit would be achievable. In consideration of these comments, the total square footage of retrofitted impervious surfaces that must be in transportation rights-of-way is 1,500,000 square feet. EPA notes that the total square footage retrofit requirement is unchanged. EPA believes that this requirement will establish a strong foundation for the implementing a retrofitting program overall and in transportation rights-of-way, which can be followed in subsequent permits with more aggressive drainage area objectives. In addition, the Final Permit includes an additional provision that is intended to enhance the District's retrofit opportunities (*see* next paragraph).

The Final Permit establishes a requirement for the District to adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. Although this specific element was not included in the Draft Permit, it reflects the fact that the District has already considered this provision in their proposed stormwater regulations, and is consistent with the overall retrofit approach in the Draft Permit. Both the District and EPA believe this will promote retrofitting on smaller sites that would not otherwise be subject to the performance standard in the stormwater regulations.

This section of the Final Permit also requires the District to ensure that every major renovation/ rehabilitation project for District-owned properties within the inventory of Department of Real Estate Services (DRES) and Office of Public Education Facilities Modernization (OPEFM) includes on-site retention measures to manage stormwater. This

requirement is based in part on EPA's understanding that these two agencies have control over most District buildings and renovation projects in the District. This provision was in Section 4.2 Operation and Maintenance of Stormwater Capture Practices of the Draft Permit, and was moved to Section 4.1.5 of the Final Permit since it is a retrofit requirement rather than a maintenance requirement.

(4.1.6 Tree Canopy): Several studies have documented the capacity for planting additional trees in the District and quantified the benefits.^{77,78,79,80} The District commitments to the tree planting requirements of the Final Permit are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,⁸¹ and the District's Chesapeake Bay TMDL WIP.⁸² The number was derived from the District Urban Tree Canopy Goal⁸³ of planting 216,300 trees over the next 25 years, an average of 8,600 trees per year District-wide. Adjusting this number for the MS4 area of the District, the Final Permit requires the District to develop a strategy to plant new trees at a rate of at least 4,150 annually.

There was some interest from commenters in providing input to the tree canopy strategy, thus the Final Permit includes a requirement for the District to public notice this strategy. Also, in response to several comments, EPA has clarified the annual number as a net increase in order to account for mortality.

(4.1.7 Green Roof Projects): Quite a few studies have documented the water quality benefits of green roofs.^{84,85,86} The Green Build-out Model, a project specifically carried out to

77 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC* (2007) (<http://www.caseytrees.org/planning/greener-development/gbo/index.php>).

78 University of Vermont and the U.S. Forest Service, *A Report on Washington D.C.'s Existing and Potential Tree Canopy* (2009) <http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/documents/UnivofVermontUTCReport4-17-09.pdf>

79 Casey Trees, et al. *See several District tree inventories:* <http://www.caseytrees.org/geographic/tree-inventory/community/index.php>

80 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

81 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

82 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

83 Casey Trees, *Urban Tree Canopy Goal website:* <http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/index.php>

84 EPA, *Green Roofs for Stormwater Runoff Control* (2009) <http://www.epa.gov/nrmrl/pubs/600r09026/600r09026.pdf>

85 E. Oberndorfer et al, *Green Roofs as Urban Ecosystems: Ecological Structures, Functions, and Services* (2007) *BioScience* 57(10):823-833 <http://www.bioone.org/doi/full/10.1641/B571005>

86 M. Hathaway, W.F. Hunt, G.D. Jennings, *A Field Study of Green Roof Hydrologic and Water Quality Performance* (2008) *Transactions of American Society of Agricultural and Biological Engineers*, Vol. 51(1): 37-44 <http://www.bae.ncsu.edu/people/faculty/jennings/Publications/ASABE%20Hathaway%20Hunt%20Jennings.pdf>

evaluate the potential in the District for using green roofs and other green infrastructure measures to reduce flows and pollutants from the District's wet weather systems, documented significant opportunities for green roof implementation.⁸⁷

The District commitments to green roof implementation are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,⁸⁸ and the District Chesapeake Bay TMDL Watershed Implementation Plan.⁸⁹ The District is required to evaluate the feasibility of installing green roofs on District-owned buildings, and to install at least 350,000 square feet of green roof during the permit term.

(4.2 Operation and Maintenance of Retention Practices): Operation and maintenance, required pursuant to 40 C.F.R. 122.26(d)(2)(iv)(A)(1) and (3), is critical for the continued performance of stormwater control measures.^{90,91} EPA has consistently noted the importance of operation and maintenance in regulatory guidance.^{92,93,94} Today's Final Permit requires the District to ensure adequate maintenance of all stormwater control measures, both publicly and privately owned and operated.

The District has two years from the effective date of the Final Permit to develop and implement operation and maintenance protocols for all District owned and operated stormwater management practices. The District is also required to provide regular and ongoing training to all relevant contractors and employees.

The District is required to develop operation and maintenance mechanisms to ensure that stormwater practices are maintained and operated to meet the objectives of the program and that they continue to function over multiple permit cycles to provide the water quality benefits intended by design. Such mechanisms may include deed restrictions, ordinances and/or maintenance agreements to ensure that all non-District owned and operated stormwater control measures are adequately maintained. In addition the District must develop and/or refine

87 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

88 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) <http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

89 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

90 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

91 EPA Website: Stormwater Control Operation and Maintenance. <http://www.epa.gov/owow/NPS/ordinance/stormwater.htm>

92 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001, http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

93 EPA, *MS4 Program Evaluation Guidance* (2007) EPA-833-R-07-003, http://www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf

94 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*, (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

verification mechanisms, such as inspections, and an electronic inventory system to ensure the long-term integrity of stormwater controls in the District.

In addition the District is required to develop a Stormwater Management Guidebook and associated training within eighteen months of the effective date of the Final Permit. This requirement is based on commitments in the 2008 Modified Letter of Agreement to the 2004 Permit⁹⁵. Completion of the Guidebook has been delayed pending finalization of the District's revised stormwater regulations. However EPA expects Guidebook completion to parallel finalization of the District's revised stormwater regulations, which incorporate the standards and requirements of the Final Permit.

(4.3 Management of District Government Areas): Requirements in this section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on most elements of this section of the Draft Permit. The following revisions were made:

- 1) The District now must notify not only public health agencies within 24-hours in the event of a sanitary sewer overflow, but also ensure adequate public notification procedures within that same time period (Section 4.3.1 of the Final Permit). EPA emphasizes that this provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4. Those discharges are expressly prohibited.
- 2) Within 18 months of the effective date of the Final Permit, the District shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The District shall fully implement the plan upon EPA approval. This revision is based on comments that the catch basin maintenance provisions on the Draft Permit were vague and not within the context of a comprehensive plan (Section 4.3.5.1 of the Final Permit).
- 3) Section 3.2 of the Draft Permit required the District to update its outfall inventory. One commenter noted that the District's 2006 Outfall Survey had already essentially accomplished this, and that meanwhile many of these outfalls were in severe disrepair, thus contributing to increased sediment loading to receiving waters. EPA agrees this is a serious concern, and has thus modified the Final Permit to require the District to undertake the following: within 18 months of the effective date of the Final Permit, and consistent with the 2006 Outfall Survey, the District shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022 (Section 4.3.5.3 of the Final Permit).
- 4) Consistent with the District's *Enhanced Street Sweeping and Fine Particle Removal Strategy*,⁹⁶ an additional element has been included in Table 3, Street Sweeping. The

⁹⁵ District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008)
<http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF>

⁹⁶ District Department of the Environment, *Municipal Separate Storm Sewer System Program Annual Report* (2010)

table now documents that environmental hotspots in the Anacostia River Watershed will now be swept at least two times per month from March through October.

(4.6 Management of Construction Activities): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. Several commenters suggested that these provisions needed to be significantly improved, including specifying more stringent effluent limitations, in order to address the impairments attributable to sediment.

While permitting authorities have a fair amount of latitude to modify many elements of a permit based on public comments, inclusion of a *de novo* numeric effluent limitation, when neither the Draft Permit nor the Draft Fact Sheet suggested such an option would require further public notice. Therefore, this Final Permit does not include a numeric effluent limitation for sediment discharged in stormwater from active construction sites.

However, EPA agrees that construction activities cause serious water quality problems, and has revised this section to require more robust oversight of construction stormwater controls. A significant cause of water quality problems caused by construction activities is the failure of construction site operators to comply with existing regulations. Thus, EPA expects increased inspections and enforcement activity to result in improved compliance and therefore reduced sediment loads.⁹⁷ Therefore the Final Permit includes construction site inspection frequency requirements to ensure compliance with the District erosion and sediment requirements.

(4.8 Flood Control Projects): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on this section. The following revision was made: a start date of six months after the effective date of the Final Permit was added for the requirement to collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development.

(4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation): There are several TMDLs with wasteload allocations that either directly or indirectly affect the District's MS4 discharges. The following are those that EPA has determined to be relevant for purposes of implementation via the Final Permit:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Total Suspended Solids (TSS) in the Upper and Lower Anacostia River (2002)
3. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
4. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
5. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
6. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

⁹⁷ EPA, *Office of Enforcement and Compliance Assurance Accomplishments Report* (2008)
<http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy08accomplishment.pdf>

7. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
8. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
9. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
10. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
11. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
12. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
13. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
14. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
15. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
16. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

On July 25, 2011, in connection with a challenge by the Anacostia Riverkeeper and other environmental organizations, the U.S. District Court for the District of Columbia vacated EPA's approval of a total maximum daily load (TMDL) for sediment in the Anacostia River. While the court ruled in EPA's favor on a number of issues of significant importance to the TMDL program and that the TMDL adequately would achieve the designated aquatic life use, the court held that EPA's decision record did not adequately support EPA's determination that the TMDL would lead to river conditions that would support the primary (swimming) and secondary (boating) contact recreation and aesthetic designated uses. Based on its holding regarding the recreational and aesthetic uses, the court vacated the TMDL, but stayed its vacatur for one year to give EPA sufficient time to address the court's concerns. This TMDL is included in the above list (#12), because EPA expects this vacatur to be resolved within the time frame for TMDL efforts outlined in this permit. However, District planning and implementation efforts on this TMDL are not required until such time as the legal challenge is resolved and the TMDL is established.

Most EPA developed TMDLs for the District, as well as all District developed and EPA approved TMDLs can be found at the following website:

http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/index.htm.

The Chesapeake Bay TMDL for nitrogen, phosphorus and sediment is available at:

<http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>.

The District also has a number of TMDL-related documents on its website:

<http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495456.asp>.

In addition, the tidal Anacostia River is listed as impaired for TSS and BOD, and the Upper Potomac River is listed as impaired for pH. TMDL establishment by EPA is pending for both.

As part of permit reissuance EPA has reviewed several existing TMDL implementation plans, including those for the Potomac River, Anacostia River and Rock Creek. EPA has identified the relevant implementation actions from those Plans and included them as requirements of the Final Permit, *e.g.*, green roofs, tree plantings. This approach provides more clarity for the District and the general public, and is also consistent with the obligation of NPDES permit writers to articulate enforceable provisions in permits to implement TMDL WLAs.

EPA took the same approach with the Anacostia River Watershed Trash TMDL⁹⁸ (Trash TMDL) (Part 4.10.1 of the Final Permit), which was finalized in September 2010. This TMDL was well-developed with quantifiable information about the sources and causes of impairment. The Trash TMDL assigned a specific WLA to MS4 discharges: removal of 103,188 pounds of trash annually. The Final Permit requires the District to attain this WLA as a specific single-year measure by the fifth year of this permit term. The Final Permit provision is based on the annual trash WLA for the District MS4. In the TMDL, annual WLAs were divided by 365 days to obtain daily WLAs. Given the fact that the daily and annual WLAs are congruent with each other, use of the annual WLA as the permit metric is consistent with the assumptions and requirements of the TMDL and is a more feasible measure for monitoring purposes.

Because the Anacostia River Watershed Trash TMDL provided a solid foundation for action, EPA determined the implementation requirements and included them in the Final Permit rather than require the District to develop a separate implementation plan. The Permit requires the District to determine a method for estimating trash reductions and submit that to EPA for review and approval within one year of the effective date of the Final Permit. In addition, the District must annually report the trash prevention/removal approaches utilized, and the overall total weight (in pounds) of trash captured for each type of approach.

On December 29, 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay TMDL⁹⁹ to restore clean water in the Chesapeake Bay Watershed. The TMDL identifies the necessary reductions of nitrogen, phosphorus and sediment from Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia that, when attained, will allow the Bay to meet applicable water quality standards. EPA based the TMDL allocations, where possible, on information provided by the Bay jurisdictions in their final Phase I WIPs. The TMDL requires the Bay jurisdictions to have in place by 2017 the necessary controls to attain 60% of the reductions called for in the TMDL, and to have all controls in place by 2025. EPA has committed to hold jurisdictions accountable for results along the way, including ensuring that NPDES permits contain provisions and limits that are consistent with the assumptions and requirements of the relevant WLAs.

98 Maryland Department of the Environment and District of Columbia Department of Environment, *Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia* (2010) <http://www.epa.gov/reg3wapd/pdf/AnacostiaTMDLPortfolio.pdf>

99 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) <http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html>

The District’s final Phase I Chesapeake Bay WIP proposed very aggressive targets for pollutant reductions in its MS4 program.

Pollutant of Concern	% Reductions in Urban Runoff Loads by 2025 from 2009 Baseline	Reductions in Urban Runoff Loads by 2025 from 2009 Baseline
Total Nitrogen	17	29,310 lbs/yr
Total Phosphorus	33	7,740 lbs/yr
Sediment	35	2,192 tons/yr

These numbers are from the District’s final input deck to the Chesapeake Bay Model in association with the final Phase I WIP.

The Final Permit requires a very robust set of measures, based on a determination that these measures are necessary to ultimately achieve the specified reductions. EPA took a similar approach with the Chesapeake Bay TMDL as it did with the aforementioned TMDLs, and incorporated specific implementation measures into the Final Permit. Although EPA did not finalize the Chesapeake Bay TMDL until December 2010, EPA had a reasonably clear understanding of what would be needed even prior to publishing the Draft Permit because of the significant amount of data, modeling output and other information available in advance of its finalization, as well as many months of ongoing discussions with the District about the elements of its final Phase I WIP.¹⁰⁰ Based on the final TMDL, EPA is assured that the Final Permit is consistent with the assumptions and requirements of the WLAs in the TMDL.

In partial fulfillment of attaining the Chesapeake Bay WLAs, the Final Permit contains: a new performance standard for development, a requirement for an offset program for development, numeric requirements for tree plantings and green roof installation, numeric requirements for retrofits, and a variety of other actions. The relevant sections of this Final Fact Sheet discuss those provisions more fully.

There will be two additional permit terms prior to 2025 during which the District will implement many additional and/or more robust measures to attain its Bay TMDL WLAs. Provisions, targets and numeric thresholds in this Final Permit are not necessarily the ones that will be included in subsequent permits. EPA believes, however, that the 2011 Final Permit sets the foundation for a number of actions and policies upon which those future actions will be based.

Section 4.10.2 of the Final Permit requires the District to implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run to satisfy the applicable oil and grease TMDL wasteload allocations. In addition, the District is required to install end-of-pipe management practices at four identified outfalls to address oil and grease and trash in Hickey Run no later than the end of this permit term. Implementation requirements to attain these WLAs were initiated during prior

¹⁰⁰ District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)
http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Columbia_WIP_Bay_TMDL.pdf

permit terms. The requirements of today's Final Permit are intended to bring the District to the concluding stages of attaining the Hickey Run oil and grease and trash WLAs.

The 2003 District of Columbia TMDL for oil and grease in the Anacostia River noted that the waterbody was no longer impaired by oil and grease. In particular data from Hickey Run, which provided the basis for listing the Anacostia River as an impaired water body, had demonstrated consistent compliance with applicable water quality standards for oil and grease: for twenty-one samples taken in Hickey Run between January and December 2002, no values exceeded the 10mg/L standard, and only one sample exceeded a 5 mg/L detection limit value. The 2003 TMDL further concluded that on-going implementation activities, which included public education and automobile shop enforcement actions, caused a significant decrease in ambient pollutant concentrations.¹⁰¹ The Final Permit includes a provision for additional controls on oil and grease in Hickey Run should monitoring during this permit term indicate it is necessary. However, per the demonstration noted above, EPA believes it likely this may not be necessary.

One commenter indicated that the shift from an aggregate numeric effluent limit for four outfalls into Hickey Run in the 2004 permit to a management practice-based approach in the Draft Permit violated the Clean Water Act's prohibition against backsliding, section 402(o)(1) of the CWA, 33 U.S.C. § 1342(o)(1) (“[A] Permit may not be renewed, reissued, or modified ... subsequent to the original issuance of such Permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous Permit”). In response, EPA notes that a non-numeric effluent limitation is not automatically less stringent than a numeric effluent limitation. A different (numeric or non-numeric) effluent limitation only violates the anti-backsliding prohibition if it can be fairly compared to the prior numeric limit and found to be less stringent than that requirement. *See e.g., Communities for a Better Environment v. State Water Resources Control Bd.*, 132 Cal. App. 4th 1313 (August 29, 2005) (finding that no backsliding had occurred where the effluent limit in existing permit was not “comparable” to WQBEL in previous permit). In this case EPA 1) notes that additional controls on oil and grease may not be needed (as explained above), and 2) has determined regardless that compliance with the performance standards in the Final Permit will result in improved water quality protections for the District MS4 receiving streams more effectively than did the previous numeric effluent limitations (see discussions in relevant sections).

Section 4.10.3 of today's Final Permit requires the District to develop a Consolidated TMDL Implementation Plan (Consolidated Plan) for all TMDL wasteload allocations assigned to District MS4 discharges. All applicable WLAs must be considered in this plan, though the TMDLs listed at the beginning of this Section form the basis for District action to meet this requirement. EPA has evaluated these TMDLs along with existing water quality data and has concluded that *E. coli*, total nitrogen, total phosphorus, total suspended solids, copper, lead, zinc and trash are critical pollutants of concern for District waters, and should be the focus of implementation measures as well as of a revised monitoring program (*see* Section 5.1 for a

¹⁰¹ District of Columbia, *Final Total Maximum Daily Load for Oil and Grease in the Anacostia River* (2003) http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/AnacostiaRiver/AnacoatiaOilReport.pdf

discussion of the latter).

The rationale for a Consolidated Plan is to allow for more efficient implementation of control measures. In many cases TMDLs have been developed on a stream segment basis, which is not always the most logical framework for implementation of controls. In addition, the solutions for reducing many pollutants and/or improving water bodies will be the same stormwater control measures and/or policies, and it would be wasteful of resources and duplicative to have separate implementation plans under those circumstances.

The Final Permit requires the Consolidated Plan to include:

- 1) Specified schedules for attaining applicable wasteload allocations for each TMDL; such schedules must include numeric benchmarks that specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
- 2) Interim numeric milestones for TMDLs where final attainment of applicable wasteload allocations requires more than one permit cycle. These milestones shall originate with the third year of this permit term and every five years thereafter.
- 3) Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
- 4) The Consolidated TMDL Implementation Plan elements required in this section will become enforceable permit terms upon approval of such Plans, including the interim and final dates in this section for attainment of applicable WLAs.
- 5) Where data demonstrate that existing TMDLs are no longer appropriate or accurate, the Plan shall include recommended solutions, including, if appropriate, revising or withdrawing TMDLs.

Some of the applicable TMDLs developed within the District were based on limited or old data. In those cases the District may choose to reevaluate these waters and impairments to determine if revising or withdrawing the TMDL, or other action, would be appropriate.

The District has two years from the date of Final Permit issuance to develop, public notice and submit the Consolidated Plan to EPA for review and approval. EPA believes the required elements (1-5, above) will ensure clarity and enforceability, but also encourages interested parties to participate in the public process. EPA added this public notice requirement to the Final Permit because of the significant interest expressed by commenters on District TMDLs.

Section 4.10.4, Adjustments to TMDL Implementation Strategies, requires the District to make mid-course improvements to implementation measures and policies whenever data indicate insufficient progress towards attaining any relevant WLA. The District must adjust its management programs to compensate for the inadequate progress within 6 months, and document the modifications in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the necessary reductions, *i.e.*, quantitatively linking sources and causes to discharge

quality. In addition, annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant.

Finally, with respect to any new or revised TMDL that may be approved during the permit term, the Final Permit makes allowances for reopening the permit to address those WLAs (see Section 8.19 of the Final Permit: Reopener Clause for Permits), if necessary. EPA believes that reopening the permit will not typically be necessary since the Final Permit requires the District to update the Consolidated Plan within six months for any TMDL approved during the permit term with wasteload allocations assigned to District MS4 discharges, and also to include a description of revisions in the next regularly scheduled annual report.

(4.11 Additional Pollutant Sources): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA notes that the provisions of this section were mostly included in Section 3 of the Draft Permit.

5. MONITORING AND ASSESSMENT OF CONTROLS

(5.1 Revised Monitoring Program): As included in the Draft Permit, the monitoring requirements for the District's stormwater program have been significantly updated from the last permit cycle. This revision reflects the fact that the District has already performed broad monitoring of a variety of parameters over the last two permit cycles. The Phase I stormwater regulations require representative sampling for the purpose of discharge characterization in the first permit term, or initial years of the program (40 C.F.R. §122.26(d)(1)(iv)(E)). The District now has a decade worth of this type of data, and it is timely to update the monitoring program to more effectively evaluate the effectiveness of the program, and to more effectively and efficiently use the District's funds for this purpose. As noted in the National Research Council's report *Urban Stormwater Management in the United States*¹⁰², the quality of stormwater from urbanized areas has been well-characterized. Continuing the standard end-of-pipe monitoring typical of most MS4 programs has produced data of limited usefulness because of a variety of shortcomings (as detailed in the report). The NRC Report strongly recommends that MS4 programs modify their evaluation metrics and methods to include biological and physical monitoring, better evaluations of the performance/effectiveness of controls and overall programs, and an increased emphasis on watershed scale analyses to ascertain what is actually going on in receiving waters. The report also emphasizes the link between study design and the ability to interpret data, *e.g.*, having enough samples to ensure that conclusions are statistically significant.

Consistent with these goals, the Final Permit requires the District to develop a Revised Monitoring Program to meet the following objectives:

- 1) Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of

¹⁰² National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

- sampling stations must be adequate to ensure data are statistically significant and interpretable.
- 2) Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).
 - 3) Any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

The Final Permit requires the District to public notice the Revised Monitoring Program, and to submit it to EPA for review and approval within two years of the effective date of the Final Permit.

EPA also significantly refined the list of required pollutant analytes/parameters for which monitoring is required from over 120 to 9:

(Table 4 from the Final Permit)
Monitoring Parameters

Parameter
<i>E. coli</i>
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

These parameters are those for which relevant stormwater wasteload allocations exist, or (in the case of cadmium) where monitoring data indicate that the pollutant is occurring in discharges at concentrations and frequencies to consider it a pollutant of concern. End-of-pipe analytical monitoring is an expensive undertaking, and EPA feels strongly that the District's water quality-related evaluations will be much more robust and actionable with an enhanced focus on true pollutants of concern, along with the elimination of analytes for which monitoring routinely shows non-detect concentrations, and/or those to which notable water quality problems have not been linked.

One modification has been made to this list for the Final Permit from the Draft Permit.

The Draft Permit required evaluation of Trash reductions in the relevant sections for the Anacostia River Watershed Trash TMDL (4.10.1), but failed to include it in Table 4 (Table 3 of the Draft Permit). EPA has added trash as a monitoring parameter to this table to correct that oversight.

(5.2 Interim Monitoring): During the interim period from the effective date of the Final Permit until EPA approves the Revised Monitoring Program, the Final Permit requires the District to largely continue the monitoring program established and updated under the 2000 and 2004 permits, except the monitoring program is only required for the list of monitoring parameters in Table 4, which has been reduced to the nine parameters as discussed above.

EPA received several comments and questions on the interim monitoring requirements. Individual responses are included in the Responsiveness Summary published with the Final Permit and this Final Fact Sheet. EPA chose to not modify the interim monitoring provisions for the Final Permit because: 1) they are largely an extension of the same requirements and methods already approved and established under prior permits, which will ensure that data collected during the interim monitoring period are comparable to data collected during the past decade, thus providing “apples to apples” comparisons in data interpretation; and 2) EPA believes that the District’s monitoring-related resources are more effectively spent developing a robust revised program, rather than revising the interim program.

(5.4 Area and/or Source Identification Program): The Final Permit provides that “[t]he permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.” This is identical in substance to section 5.5 in the Draft Permit and essentially continues the requirements from the 2004 MS4 Permit. EPA received a comment that this provision has been inadequate to identify sources contributing pollutants to MS4 discharges. EPA recognizes that this provision is general, but believes that the District’s ongoing practices are sufficient during the interim monitoring period. EPA notes that the Final Permit requires the Revised Monitoring Program to include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. The public will have a chance to comment on the proposed objectives and methods in Plan, and EPA will review and approve this Plan. Therefore there will be several opportunities to ensure that the District has robust methods for identify additional pollutant inputs to District MS4 discharges.

(5.7 Reporting of Monitoring Results): In response to several comments, and because of the potential availability of electronic reporting in the future, EPA made several modifications to this Section of the Final Permit. When available the District may submit monitoring data through NetDMR, a national tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to EPA. *See* <http://www.epa.gov/netdmr/>. However, if this system is not available to the National Marine Fisheries Service, then the District must continue to submit hard copies. The Final Permit eliminates the requirement for the District to submit monitoring reports to itself. This section

clarifies (consistent with Section 6.2) that all monitoring results from a given year be summarized in the following annual report.

6. REPORTING REQUIREMENTS

Permit reporting is required pursuant to 40 C.F.R. § 122.41(l). EPA has made a number of minor edits to this section primarily for the purposes of: maintaining consistency with other Sections of the Final Permit (as those provisions necessitated changes in reporting, the Final Fact Sheet discusses those changes in association with the relevant Section); eliminating redundancy; and to provide clarification.

(6.2 Annual Reporting): Consistent with comments from a number of commenters regarding public access to documents, today's Final Permit requires the District to post each Annual Report on its website at the same time the Report is submitted to EPA.

The separate 'Reporting on Funding' in the Draft Permit has been eliminated in the Final Permit because it was largely redundant with other reporting requirements, and because it was beyond the scope of what is needed from the District. The Final Permit requires annual reporting on projected costs and budget for the coming year as well as expenditures and budget for the prior year, including (i) an overview of the District's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs, and (iv) a demonstration of adequate fiscal capacity to meet the permit requirements. However, EPA has concluded that additional detail would be superfluous. In addition, beyond a demonstration of basic budget considerations as outlined in the Final Permit, how the District chooses to allocate resources to comply with the permit is an internal decision.

EPA has also included a provision for an Annual Report Meeting in this permit in order to improve communication between the District and the Agency. This meeting will provide an opportunity for EPA to obtain more in-depth knowledge of the District's program, and should also enhance feed-back on the program. The permit requires the District to convene the first Annual Report Meeting within 12 months of issuance of the permit. If both parties agree that this first meeting was successful, the Annual Report meeting shall be extended for the duration of the permit term.

7. STORMWATER MODEL

The Stormwater Model and associated Geographical Information System are tools used by the District to help track and evaluate certain components of the water quality program. The Final Permit requires the use and maintenance of this system as a component of the District's Stormwater Management Program. There were no modifications to this Section between the Draft Permit and the Final Permit.

8. STANDARD PERMIT CONDITIONS FOR NPDES PERMITS

The provisions in Part 8 are requirements generally applicable to all NPDES permits, pursuant to 40 C.F.R. § 122.41, as well as other applicable conditions pursuant to § 122.49 and specific statutory or regulatory provisions as noted in the permit. No changes were made to this section of the permit.

9. PERMIT DEFINITIONS

Most changes to this section from the Draft Permit consist of minor clarifications. In addition, several terms were eliminated from this section because they do not appear elsewhere in the Final Permit: ‘goal’, ‘internal sampling station’, ‘significant spills’, and ‘significant materials’. The definition of ‘MS4 Permit Area’ was removed because it is already defined in Part 1.1.

A definition of “development” was added to clarify that development is “the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet.” The definition further clarifies that the relevant performance standard for development applies to projects that commence after 18 months from the effective date of the Final Permit or as soon as the District’s stormwater regulations go into effect, whichever is sooner.

The definition of ‘green roof’ was modified to allow for the fact that some types of ecoroofs may be constructed without vegetation or soil media.

The definition of “retrofit” was modified to focus on environmental outcomes, *i.e.*, reductions in discharge volumes and pollutant loads and improvements in water quality, rather than implementation of conveyance measures.

The definition of “predevelopment hydrology” was enhanced to clarify that the phrase refers to a “stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.” This definition is consistent with several seminal publications on the topic including *Urban Stormwater Management in the United States*¹⁰³ and references therein, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*¹⁰⁴, and *Guidance for Federal Land Management in the Chesapeake Bay Watershed*¹⁰⁵, issued in fulfillment of Part 502 of E.O. 13508.

103 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

104 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009) http://www.epa.gov/owow_keep/nps/lid/section438/

105 EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban

RELATIONSHIP TO NON-POINT SOURCE PROGRAM:

It should be noted that the measures required by the Permit are separate from those projects identified in the District's EPA-approved Non-Point Source Management Plan as being funded wholly or partially by funds pursuant to Section 319(h) of the Clean Water Act. See Section 3 of Permit ("These Permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this Permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.").

ADMINISTRATIVE RECORD:

Copies of the documents that comprise the administrative record for the Permit are available to the public for review at the Martin Luther King, Jr. Public Library, which is located at 901 G Street, N.W. in Washington, D.C. An electronic copy of the proposed and final Permits and proposed and Final Fact Sheets are also available on the EPA Region III website, http://www.epa.gov/reg3wapd/npdes/draft_permits.html. For additional information, please contact Ms. Kaitlyn Bendik, Mail Code 3WP41, NPDES Permits Branch, Office of Permits and Enforcement, EPA Region III, United States Environmental Protection Agency, 1650 Arch Street, Philadelphia, Pennsylvania 19103-2029.

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

APR 10 2008

Ms. Tam M. Doduc, Chair
Ms. Dorothy R. Rice, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Doduc and Ms. Rice:

I understand that certain specific provisions of the 2001 Municipal Separate Storm Sewer System ("MS4") permit for the County of Los Angeles have been called into question as going beyond what is required under section 402(p) of the CWA. (Commission on State Mandates, File Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.) The permit conditions at issue are: 1) the requirements for conducting inspections at industrial and commercial facilities including, restaurants and automobile servicing, [Parts 4.C.2.a. and b.] and, 2) the requirement for permittees not subject to the Trash TMDL to locate and maintain trash receptacles at transit stops [Part 4.F.5.c.3.]. California RWQCB, Los Angeles Region, Order No. 01-182, NPDES No. CAS004001 (Dec. 13, 2001). This letter discusses these permit conditions in the context of EPA's expectations for MS4 permits.

Section 402(p) of the Clean Water Act, 33 U.S.C. 1342(p), requires EPA (or authorized states) to issue National Pollutant Discharge Elimination System ("NPDES") permits to regulate the discharge of stormwater from MS4s. Typically, these MS4s are owned and operated by cities and counties. Pursuant to the Clean Water Act, these permits must require the MS4 to: 1) "effectively prohibit" non-stormwater discharges, and 2) "reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. 1342(p)(3)(B)(ii) and (iii).

The NPDES regulations require medium and large MS4s to develop stormwater management programs that the permitting authority will consider when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Stormwater permitting has generally relied on the use of best management practices ("BMPs"), including both structural and non-structural controls, for achieving compliance with these requirements. The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754 (Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process."); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and

expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards”). See also, “Evaluating the Effectiveness of Municipal Stormwater Programs” (January 2008) (http://www.epa.gov/npdes/pubs/region3_factsheet_swmp.pdf). While the standard of “maximum extent practicable” (MEP) allows for flexibility, that flexibility is not boundless and requires some level of vigor. EPA has created a national menu of stormwater BMPs to provide additional guidance concerning appropriate BMPs for stormwater management plans. Other factors to consider in ensuring appropriate controls include “technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness.” Building Indus. Ass’n v. State Water Res. Control Bd., 124 Cal. App. 4th 866, 889 (2004). See also “In re Cities of Bellflower, et al.”, SWRCB 2000-11.

At the outset, I note the Los Angeles MS4 permit is a third generation Phase I MS4 permit that should be building upon the experiences from previous permits. Both of the provisions at issue here seem well within a reasonable expectation of controls that reduce pollutants to the “maximum extent practicable.” EPA regulations at 40 C.F.R. §122.26(d)(2)(iv) set forth the basic elements to be included in a Phase I MS4’s stormwater management program. Subparagraph (A) requires a description of “source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the [MS4] that are to be implemented during the life of the permit.” Subparagraph (B) requires a program for detection and removal of illicit discharges and improper disposal into the storm sewer, including a program for inspections and enforcement. A program for commercial and industrial facility inspection and enforcement that includes restaurants and automobile facilities, would appear to be both practicable and effective. Such an inspection program ensures that stormwater discharges from such facilities are reducing their contribution of pollutants and that there are no non-stormwater discharges or illicit connections. Thus these programs are founded in both 402(p)(3)(B)(ii) and (iii) and are well within the scope of 40 C.F.R. §122.26(d)(2)(iv)(A) and (B).¹

Similarly, maintaining trash receptacles at all public transit stops is well within the scope of these regulations. Among the minimum controls required to reduce pollutants from runoff from commercial and residential areas are practices for “operating and maintaining public streets, roads, and highways” §122.26(d)(2)(iv)(A)(3). I believe these requirements are also practical and effective.² Moreover, this permit provision is consistent with EPA's national menu

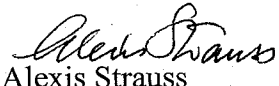
¹EPA’s “MS4 Program Evaluation Guidance” (January 2007) envisions that an MS4 permit would include a requirement for an inspection program for common industrial/commercial businesses, such as restaurants and gas stations, within the jurisdiction of the MS4. *Id.* at 76 - 77, 81. The inspection requirements of the LA MS4 permit are consistent with the recommended activities in the Guide.

²The provision applicable to the TMDL permittees is also clearly consistent with EPA’s 2002 guidance on TMDLs and storm water permitting. “Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit

of BMPs for stormwater management programs, which recommends a number of BMPs to reduce trash discharges. See <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=5>. Among the recommendations is "improved infrastructure" for trash management when necessary, which includes the placement of trash receptacles at appropriate locations based on expected need. The requirements of the Los Angeles County MS4 permit are consistent with this recommendation. See also, "MS4 Program Evaluation Guidance" (January 2007) at pp. 50, 79. EPA's expectations of the programs to reduce pollutants to the maximum extent practicable specifically refer to control of litter and trash, regardless of whether the particular receiving water is already impaired for trash.

I hope that this explanation helps clarify EPA's expectations for MS4 permit requirements under the Clean Water Act. I look forward to continuing to work with the State on our shared goal of ensuring consistency and effectiveness in storm water permitting as a vital tool in protecting the quality of our waters. Should you have further questions about these issues, please have your staff contact Douglas Eberhardt of my staff at (415) 972-3420 or have your counsel's office contact Laurie Kermish of the Office of Regional Counsel at (415) 972-3917.

Sincerely,

 10 April 2008
Alexis Strauss
Director, Water Division

cc: Mr. Michael Lauffer, Chief Counsel
State Water Resources Control Board

Ms. Paula Higashi, Executive Director
Commission on State Mandates

Requirements Based on Those WLAs" (November 22, 2002) which is available at:
http://cfpub.epa.gov/npdes/pubs.cfm?program_id=6

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX Southern California Field Office
600 Wilshire Blvd. Suite 1460
Los Angeles, CA 90017

July 31, 2008

Mark A Grey
Director of Environmental Affairs
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Andrew R. Henderson
Vice President and General Counsel
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Dear Dr. Grey and Mr. Henderson:

This is in response to your July 1, 2008 letter to Alexis Strauss regarding the incorporation of Low Impact Development (LID) provisions into Municipal Separate Storm Sewer System (MS4) permits in southern California.

Your letter refers to your email communications with Ms. Strauss, as well as to testimony provided at the February 13, 2008 San Diego Regional Water Quality Control Board Hearing by Dr. Cindy Lin and to the April 1, 2008 comments to the Colorado River Basin Regional Water Quality Control Board by Mr. Doug Eberhardt. Your letter asks several questions about the U.S. EPA Region 9 Water Division's positions regarding the incorporation of LID provisions into southern California MS4 permits.

Nationally, U.S. EPA has formally recognized the benefits of LID (also termed "Green Infrastructure") in several policy documents. EPA is advocating green infrastructure as an approach to wet weather management that is cost-effective, sustainable, and environmentally-sound. On April 19, 2007, EPA and four national groups signed an agreement to promote green infrastructure as an environmentally preferable approach to storm water management, and on August 16, 2007 EPA issued a memo encouraging the incorporation of Green Infrastructure into NPDES storm water permits. Ongoing efforts are described in the January 17, 2008 Action Strategy for Managing Wet Weather with Green Infrastructure. All of these materials regarding EPA's policy on green infrastructure can be found at:

<http://cfpub.epa.gov/npdes/greeninfrastructure/information.cfm#greenpolicy>.

In EPA Region 9, we are promoting LID strategies that infiltrate, evapotranspire, capture, and reuse storm water to maintain or restore natural hydrologies and improve water

quality. We are encouraging permitting agencies across Region 9 to incorporate LID provisions into MS4 permits as clear, measurable and enforceable requirements.

The next round of MS4 permits in the coastal Regions of southern California will be the fourth generation of these permits. It is our expectation that these latest permits be strengthened to take advantage of lessons learned from previous permits, and to contribute to the restoration of impaired waters impacted by MS4s. These new MS4 permits should include quantitative requirements to enable all parties to clearly identify performance expectations for LID implementation.

Your letter asks several questions about our position regarding permit provisions which call for LID implementation to attain a standard of no more than 5% Effective Impervious Area (EIA). Such provisions are included in the current draft (April 29, 2008) MS4 permit for Ventura County proposed by the Los Angeles Regional Water Quality Control Board, and the February 15, 2008 guidelines provided by the Central Coast Regional Water Quality Control Board to those in the Central Coast Region enrolling under the State's Phase II general MS4 permit. We support the inclusion of the 5% EIA provisions for new development and redevelopment projects in both of these examples as clear, measurable, and enforceable requirements. Use of the 5% EIA requirement is not the only acceptable, quantitative approach for incorporating LID into renewed MS4 permits in southern California. As noted in Mr. Eberhardt's April 1, 2008 letter, and his May 13, 2008 follow-up letter to the Colorado River Basin Regional Water Quality Control Board, we are open to other quantitative means for measuring how LID tools reduce storm water discharges.

Your letter asks about our use of a paper by Dr. Richard Horner concluding that the achievement of a 3% EIA standard for development in Ventura County is feasible. Dr. Horner's paper is one of many we have before us. Our positions have been informed by many documents germane to the management of municipal storm water, including the January 21, 2008 paper by your organization entitled "Integration of Low Impact Development Measures and CEQA Approvals." EPA has also considered numerous publications, case studies and guidance manuals in its consideration of LID/Green Infrastructure as a cost-effective, preferable alternative to storm water management. A partial list of these materials may be found at <http://cfpub.epa.gov/npdes/greeninfrastructure/research.cfm>.

While we cannot attribute our position on future MS4 permits to a single report or analysis, our views on these permits have been most comprehensively informed by the nearly 50 audits of Region 9 MS4 permits we have conducted over the past seven years. These audit reports can be found on our website at <http://epa.gov/region09/water/npdes/ms4audits.html#report>. Twenty of our audits have been conducted in southern California. These audits have highlighted the need for quantitative, measurable requirements in MS4 permits to ensure effective implementation of storm water controls.

I hope this has answered the questions in your July 1, 2008 letter. If you would like to discuss this further, please call me, here in EPA's Southern California Field Office, at 213-244-1832

Sincerely,

A handwritten signature in black ink, appearing to read "John Kemmerer", written over a light blue horizontal line.

John Kemmerer
Associate Director,
Water Division

cc: Executive Officers, RWQCBs Regions 1-9
Tam Doduc, Chair SWRCB
Dorothy Rice, Executive Director, SWRCB
(all cc's transmitted electronically)

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 20 2014

Adam Fischer
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501.

Re: Draft MS4 Permit for Orange County (Permit No. CAS618030)

Dear Mr. Fischer:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS618030) for discharges from the municipal separate storm sewer system (MS4) serving the portion of Orange County under the jurisdiction of the Santa Ana Regional Water Quality Control Board (Regional Board), which the Regional Board released for public comment on May 2, 2014. In an email dated January 31, 2014, we provided comments on an earlier "administrative draft" of this permit. We appreciate the opportunity to provide early input during the permit development process. However, we are disappointed that the May 2, 2014 draft permit contains problematic new provisions allowing for compliance with water-quality provisions based on Permittee submittal of draft plans (or providing a notice of intent to submit a plan) to the Executive Officer. Following below are our comments on the latest draft permit.

A. *Total Maximum Daily Load (TMDL) Requirements*

We have concerns with the draft permit's new options for complying with permit requirements associated with approved TMDLs upon the Permittees' written notification to the Executive Officer of their intent to develop a plan to comply with applicable wasteload allocations (WLAs). Each of the TMDLs listed in Appendices B through H of the draft permit was incorporated into the Santa Ana Regional Board's 2009 Orange County MS4 Permit (R8-2009-0030), so implementation of these TMDLs should be ongoing. We'd prefer that the draft permit be revised to retain the same approach for compliance with WLAs as the 2009 permit, and as is incorporated into the San Diego Regional Board's 2013 Regional MS4 permit (NPDES Permit No. CAS0109266). It's our conclusion that basing TMDL compliance on plans limits enforceability and makes it difficult to confirm that the TMDL water quality targets are being attained. If a plan-based compliance approach is to be included, it's important for the draft permit to be revised to include a more rigorous analysis including how specifically identified BMPs will directly result in achievement of WLAs, and the expectations that interim milestones be provided to track progress towards achieving WLAs. Also, contrary to the draft permit, this option for compliance should only be available upon approval of the plan (following opportunity for public comment) by the Executive Officer.

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Per Clean Water Act and federal regulations at 40 CFR 122.44 regarding TMDLs, permit language must be modified in several places to accurately describe that Permittee's discharges must comply with water quality-based effluent limits (WQBELs), not the TMDL WLAs. Specifically, we recommend/request these language changes be made within permit section XVIII – TMDL Implementation and in each of the TMDL Appendices B-H. For example, the responsible Permittees must comply with WQBELs established in this permit; those WQBELs are consistent with WLAs within approved TMDLs.

In our emailed comments of January 31, 2014, we expressed concern that compliance with WLAs (established as WQBELs in the permit as noted above) would be determined in accordance with a schedule (yet-to-be determined) where such determinations could be as infrequent as once every five years. We had recommended WLA compliance determinations at least once/year; we noted this would consistent with the implementation language in at least one TMDL adopted by the Regional Board (organochlorine compounds TMDL). The monitoring requirements of the latest draft permit (Attachment A) have been revised to require monitoring consistent with TMDL assessment periods, but do not specify in detail the monitoring frequency that would be necessary for consistency. To clarify the requirements and to avoid any misunderstandings of the TMDL requirements, we recommend that the permit either include the monitoring frequency that would be required for consistency with each TMDL, or direct the Permittee to a specific document where it could be found.

Furthermore, the permit should be revised to include action levels as part of the permits monitoring and reporting program and, if appropriate, the Permittees' water quality improvement plans. The goal of including both non-stormwater and stormwater action levels is to guide implementation efforts and measure progress towards the protection of water quality and designed beneficial uses of the state from adverse impacts caused or contributed to by MS4 discharges. Notably, action levels were included in the Riverside County MS4 permit (2010, Santa Ana Regional Board) and the San Diego Regional permit (2013).

Section XVIII.B.4 of the draft permit would allow exceedances of a WLA at a frequency that is less than or equal to a site-specific exceedance frequency found in the State's policy guide for developing the CWA section 303(d) list. If retained, this provision should be further discussed and supported in the fact sheet. Our understanding is that the exceedance frequency in the section 303(d) listing guide does not affect the applicability of approved WLAs, and would not justify the proposed exceedances that would be allowed under the permit. Absent adequate justification for section XVIII.B.4, we recommend it be removed from the permit.

The draft permit does not currently include any requirements related to TMDLs that may be approved during the term of the permit. To expedite implementation of additional controls that may be necessary for compliance with such TMDLs, we recommend the permit include a provision similar to section O of the 2012 MS4 permit

- 3 -

for the City of Salinas (permit No. CA0049981) issued by the Central Coast Regional Board. The Salinas permit requires development and submittal within one year of final TMDL approval of a plan for complying with newly approved TMDLs. This is preferable to waiting for the next permit renewal to incorporate newly approved TMDLs. We understand that the Santa Ana Regional Board is currently developing a TMDL for selenium for the Newport Bay Watershed; our recommended provision would expedite compliance with the selenium TMDL and any others that may be approved during the term of the permit.

In Appendix G, we recommend that the second paragraph be modified to clarify that the metals and selenium TMDLs were only promulgated by EPA, and were not developed nor adopted by the Santa Ana Regional Board. We recommend the following edits to the paragraph:

~~“The WLAs in this Appendix are based on the Toxic Pollutants (Metals and Se) TMDLs. The Toxic Pollutants TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law (“OAL”) and USEPA. The Toxic Pollutants TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. R8-2003-0039. The metals and Se TMDLs were promulgated by USEPA on June 17, 2002.”~~

B. *New Development (Including Significant Redevelopment)*

Section XII.A.7 requires the Principal Permittee to submit retrofit studies. While this is a step in the right direction, it falls far short of the retrofit provisions included in the San Diego Regional Board’s Regional MS4 permit (CAS019266). We recommend incorporation of the San Diego permit’s section II.E.5.(e)(1) “Retrofitting and Rehabilitating Areas of Existing Development.” The San Diego permit requires each Co-permittee to identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address pollutants and/or stressors that contribute to the highest priority water quality conditions. This more comprehensive approach will better identify areas within the built environment where retrofits would result in water quality improvements. The San Diego permit also requires a strategy to facilitate implementation of projects identified as potential candidates for retrofits, which is lacking in the draft Orange County permit. Moreover, many of the potential retrofit BMPs (such as bioretention) would provide additional benefits such as groundwater recharge which would help alleviate current and future drought conditions; this factor increases the importance of an effective retrofit program.

Section XII.K discusses off-site treatment controls. We recognize that in some cases off-site projects can effectively address the post-construction control requirements for new development and significant redevelopment projects. This is particularly the case where off-site controls are located to optimize infiltration to replenish groundwater

- 4 -

supplies. However, it is necessary that water quality protections are in place at the site of the triggering development/redevelopment project, and the draft permit should be revised to make this explicitly clear. We recommend the Los Angeles County MS4 permit (CAS004001), which effectively addresses this issue in section VI.D.7.c.iii(7) by specifying Water Quality Mitigation Criteria that must be met for New and Redevelopment Projects that have been approved for offsite projects.

It is not clear whether regional or sub-regional biotreatment facilities would be required to treat 1½ times the capture volume required for retention facilities, as would be the case when on-site biotreatment replaces on-site retention. This requirement should be included in the permit. We further recommend that in situations where there may be a choice in using off-site retention or off-site biotreatment that the permit include a preference for retention (similar to the preference for retention over biotreatment for on-site controls).

The draft permit appears to lack any requirements for off-site mitigation when on-site LID is determined to be infeasible and regional or sub-regional facilities are not being used. We recommend that mitigation using off-site LID be required for any portion of the design capture volume for which retention or biotreatment is determined to be infeasible onsite. Such a requirement would be consistent with the 2012 Los Angeles County permit.

Finally, section XIII.L of the draft permit provides for a waiver of structural controls under certain circumstances. For example, a waiver could be available if the costs are shown to disproportionately outweigh the benefits. The waiver provisions are not explained in the fact sheet and further explanation and justification should be included. Given the experience throughout California implementing LID controls pursuant to MS4 permits, which has shown the widespread feasibility of implementing LID measures in connection with new development and redevelopment projects, we're very skeptical that this waiver provision is necessary.

C. Receiving Water Limitations

In our emailed comments of January 31, 2014, we expressed support for the receiving water limitations (RWLs) language that had been included in the administrative draft. At the time, this language closely tracked State Water Board WQ Order 99-05 and the Regional Board's 2009 MS4 permit for Orange County. Unfortunately, the May 2, 2014 draft permit (section IV) includes a new provision under which a Permittee would be deemed in compliance with RWLs upon submittal of a draft plan for compliance to the Executive Officer. As an alternative to this new draft permit language, it's our preference that the permit retain the same RWLs language contained in your 2009 Orange County MS4 permit. As you are no doubt aware, at a November 2012 workshop, the State Water Board indicated it may consider revising WQ Order 99-05. The State Board has recommended that MS4 permits include a permit reopener to address potential revisions

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to WQ Order 99-05. We suggest incorporation of such a reopener in the Orange County permit; section II.H.4.a of the San Diego permit provides appropriate language.

We are aware that while the State Board considers revisions to WQ Order 99-05, some stakeholders have been urging Regional Boards to develop new approaches for determining how RWLs compliance is determined. While our strong preference is to stick with the approach used in your 2009 permit, we have reviewed one alternative that we could support. During the development of the San Diego Regional Board's Regional MS4 permit, RB9 staff developed an option (referred to as Option 2) that would have made use of detailed Water Quality Improvement Plans to demonstrate measurable progress to achieve RWLs (included in the RB9 staff's Revised Tentative Order posted March 27, 2013). Under Option 2, after Water Quality Improvement Plan approval, its implementation would be the vehicle for achievement of RWLs. Ultimately at its May, 2013 hearing, the San Diego Regional Board chose not to adopt Option 2, and instead, with EPA's full support, adopted its Regional MS4 permit with RWLs language consistent with WQ Order 99-05. The Los Angeles MS4 permit also lays out a thorough, rigorous planning process for determining compliance with RWLs. However, we have gone on record as opposing this approach used by the Los Angeles Regional Board, given that the alternative compliance approach is available before the Plans are approved.

Unlike the San Diego Regional Board's staff proposal (Option 2) or the Los Angeles County MS4 permit, the draft Orange County permit does not provide necessary details on Permittee programs to demonstrate rigorous efforts to achieve RWLs. The deficiencies in the draft permit include the absence of measurable interim milestones and modeling efforts supporting assurances that BMPs will achieve RWLs. Again, our preference is to retain the RWLs language of the 2009 permit, but if a plan-based compliance approach is being seriously considered it should use the methodology developed by the San Diego and Los Angeles Regional Board staff, and should be available for compliance purposes only after plan approval.

D. Other Comments

1. Whole Effluent Toxicity (WET) Requirements

In our emailed comments of January 31, 2014, we had recommended that the Orange County MS4 permit include WET requirements (using EPA's Test for Significant Toxicity (TST) procedure) modeled after those in the 2012 Los Angeles County MS4 permit. The Los Angeles County permit requires tests using 100% effluent and 100% receiving water. However, the Orange County permit requires tests on a series of dilutions (section F.3 of Attachment A), and the selection of these dilutions should be explained in the fact sheet. We note the dilution series in the draft permit was commonly used in the WET data analysis methods used prior to the TST and may have been inadvertently carried over from previous permits.

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2. Monitoring Program

The list of parameters in the monitoring program for pesticides appears incomplete (Table 4 of Attachment A), in that only a limited number of organophosphate pesticides would be sampled. We recommend the list be broadened to include a wider variety of pesticide compounds in current use, such as pyrethroids (e.g., bifenthrin, cypermethrin, esfenvalerate, gamma cyhalothrin, permethrin, etc.) and neonicotinoides (e.g., clothianidin, imidocloprid, thiamethoxam).

Section II.D of Attachment A requires monitoring at representative "MS4 outfalls" but does not provide any guidance concerning the required number of locations to be sampled, or the specific locations themselves. We recommend the permit at least clarify that representative sampling locations must be selected that would allow a compliance determination with each applicable WLA. The fact sheet also notes that the intent of the permit is largely to continue the existing monitoring program, and it appears the Regional Board has generally been satisfied with the program in previous years. Nevertheless, we recommend the fact sheet further describe the program (e.g., number and location of sampling sites, frequency of sampling) to provide the public with a better sense of the scope of the program.

Based on information contained in Orange County's 2011-2012 Unified Annual Report, the County did not adequately compare dry weather receiving water composite sample results against the California Toxics Rule (CTR), specifically the chronic criteria, as required by section III.1(a) of the monitoring and reporting program requirements of the 2009 permit. Sampling results reported by Orange County were compared to the CTR acute toxicity criteria only. The lack of adequate sampling and/or analysis of dry weather composite samples against the chronic CTR criteria limits the County's ability to identify trends, potential sources, and appropriate responses to exceedances of applicable water quality standards. For the new permit, the Regional Board should ensure that the County clearly understands its responsibilities on this matter.

Finally, we note that bacteria sampling (section II.I.1.c of Attachment A) is not allowed on days when rain has occurred. The basis for this condition should be explained in the fact sheet.

3. Public Review of Updated Monitoring Program

Section II.B.6 of Attachment A provides that the Executive Officer will provide the opportunity for public comment on changes to the initial monitoring program which is submitted, but this opportunity seems missing for the initial submittal itself. We recommend the Executive Officer ensure such an opportunity for the initial submittal as well since it will likely be of greater interest than any changes in subsequent years.

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We appreciate the opportunity to provide our views on the draft permit. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,



for David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 15 2014

Mr. Ivar Ridgeway
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: Draft MS4 Permit for the City of Long Beach (Permit No. CAS004003)

Dear Mr. Ridgeway:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS004003) for discharges from the municipal separate storm sewer system (MS4) serving the City of Long Beach, which the Los Angeles Regional Board released for public comment on November 22, 2013.

We are supportive of many aspects of the draft permit. For example, the draft permit's Planning and Land Development Program (section VII.J) contains valuable provisions for ensuring that when new development and redevelopment activities are planned there are efforts to reduce pollutant impacts from impervious surfaces and make beneficial use of stormwater. We also strongly endorse the Public Agency Activities Program, which incorporates a requirement to develop an Inventory of Existing Development for Retrofitting Opportunities (section VII.K.4). We're also supportive of the draft permit's incorporation of TMDL Waste Load Allocations (WLAs) as numeric effluent limits (section VIII). In addition, we support the monitoring program (Attachment E), particularly the requirement for outfall monitoring in addition to instream monitoring since this will help identify which outfalls may be contributing to exceedances of WLAs or receiving water limitations. Finally, we support the watershed-based approach used in the permit (section VII.C) which we believe will maximize water quality improvement overall by ensuring that best management practices are appropriately customized to the needs of individual watersheds.

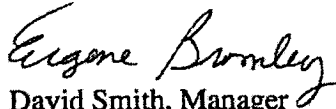
Although we're strongly supportive of much of the draft permit, we have concerns with three areas, each of which we raised in testimony at the November 8, 2012 adoption hearing for the Los Angeles County MS4 permit. These concerns, and our recommendations to address them, are discussed below:

A. *Compliance with TMDL-based Water Quality-Based Effluent Limits Via Retention of the 85th percentile, 24-Hour Storm*

Section VIII.F.1.d of the draft permit provides that a permittee implementing an enhanced watershed management plan (EWMP) will be deemed in compliance with applicable water quality-based effluent limits associated with TMDLs if the runoff from

has happened since then, particularly the approval of a large number of TMDLs with applicable WLAs. While this necessarily complicates the 2012 permit, it also provides a major opportunity for water quality improvement via the implementation of these TMDLs. Our understanding of the benefits of LID has also increased since 2001 and this proposed permit provides another substantial opportunity of water resource benefits. The process for the development of the new draft permit has also been lengthy, but we believe the permit is ready for adoption and again we urge the Board to adopt the permit at its September 2012 meeting. If you would like to discuss this matter further, please contact Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,

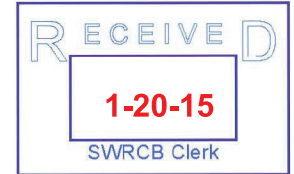

for David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 20 2015



Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor (95814)
P.O. Box 100
Sacramento, CA 95812-0100

Re: Comments to A-2236(a)-(kk)

Dear Ms. Townsend:

The following are EPA Region 9's comments on the State Water Board's draft WQ Order released on November 21, 2014, responding to the petitions (SWRCB/OCC files A-2236(a) through (kk)) submitted challenging NPDES permit No. CAS004001. This permit was issued in November 2012 by the Los Angeles Regional Board and authorizes discharges from the municipal separate storm sewer system (MS4) serving most of Los Angeles County. Region 9 offers the following comments on certain aspects of the Order.

A. "Safe Harbor" During the Planning Phase for a WMP/EWMP

Section VI.C.3.b of the LA MS4 permit provides that permittees are deemed in compliance with receiving water limitations (RWLs) upon notification to the Regional Board of their intent to develop a watershed management program (WMP) or enhanced watershed management program (EWMP). In our testimony at the November 2012 adoption hearing for the permit (and in a subsequent August 14, 2013 letter to the State Water Board), we recommended a change in the timing of when a permittee would be deemed in compliance. Rather than being deemed in compliance upon notification of intent to prepare a WMP/EWMP, we recommended that a permittee be deemed in compliance only after approval of a WMP/EWMP.

Section II.B.6 of the draft WQ Order supports the LA MS4 permit with regards to the timing of when the "safe harbor" period would begin. Establishing a safe harbor during this planning phase is not warranted. The requirement that LA County permittees meet RWLs was in place for over eleven years prior to the issuance of this permit. We disagree that permittees should be considered in compliance with these limits solely based on a notification of intent to prepare a plan.

A provision consistent with our recommendation was drafted as one option for the draft Regional MS4 permit (NPDES permit No. CAS0109266) proposed by the San Diego Regional Board in April 2013. The San Diego Regional Board chose to stick with

- 2 -

an approach for compliance with RWLs that closely aligned with State Board Order WQ 99-05 (i.e., not this draft WQ Order's proposed option). In conclusion, the San Diego Board's option for finding permittees in compliance with RWLs only when a plan is approved should be incorporated into the State Water Board's final WQ Order responding to the LA MS4 permit petitions.

B. Compliance with RWLs Via Retention of the 85%, 24-Hour Storm for Drainage Areas with EWMPs

Section VI.E.2.e.i.4 of the LA MS4 permit provides that for drainage areas where a EWMP is developed, retention of the runoff from the 85%, 24-hour storm would constitute compliance with applicable Water Quality Based Effluent Limits (WQBELs) and RWLs for pollutants associated with TMDL Waste Load Allocations (WLAs). We raised concerns with this provision in our testimony at the November 2012 adoption hearing. It has been a long-standing EPA policy that where a MS4 permit does not incorporate TMDL WLAs as numeric limits, the permit's administrative record must demonstrate that specified control measures will be sufficient to ensure compliance with WLAs. In a December 4, 2012 letter, we requested that the Los Angeles Regional Board identify documents in the permit's administrative record which are the basis for the conclusion that the specified retention would result in achieving WLAs. Based on the Regional Board's April 11, 2013 response, we do not believe that the permit's record supports the conclusion that this retention will result in achievement of WLAs.

The draft WQ Order in section II.B.5 recognizes that the LA MS4 permit does not verify that TMDL-specific limitations will be met as a result of retention of the 85%, 24-hour storm. The draft WQ Order addresses this issue by requiring the submittal of a plan of additional control measures if the specified volume is retained, but water quality monitoring shows that RWLs and WQBELs associated with TMDLs are not in fact being achieved. While this is a step in the right direction, we are concerned that only requiring submittal of a plan could lead to an ineffective iterative process without any assurance that water quality will be protected. We recommend that the provision be strengthened to specify that the expectations for this plan must include: (1) a quantitative analysis demonstrating that proposed additional control measures will result in attainment of WLAs, and (2) a provision for the Executive Officer to have the option to require strict compliance with numeric WLAs if continued progress is not being made towards achieving these water quality limitations.

C. Applicability of the WQ Order to All Regional Boards

We note that some commenters on the draft WQ Order recommended that the State Water Board require that all Regional Boards follow the WMP/EWMP approach in the LA MS4 permit when issuing MS4 permits. As drafted, the proposed WQ Order (section II.B.7) directs all Regional Boards to consider the approach in the LA MS4 permit, but does not require its use. We believe it would be premature and inappropriate

- 3 -

to require the LA MS4 permit approach throughout the State, especially considering the previous two issues we've identified in this letter.

We appreciate the opportunity to provide our views on the draft WQ Order. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Section at (415) 972-3510.

Sincerely,

A handwritten signature in black ink, appearing to read "David Smith". The signature is fluid and cursive, with the first name "David" written in a larger, more prominent script than the last name "Smith".

David Smith, Manager
NPDES Permits Section (WTR-2-3)

ATTACHMENT

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MS4 Permit Improvement Guide



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF WATER

OFFICE OF WASTEWATER MANAGEMENT

WATER PERMITS DIVISION

APRIL 2010

EPA 833-R-10-001



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 14 2010

Dear NPDES Stormwater Managers,

OFFICE OF
WATER

I am pleased to announce that the Environmental Protection Agency (EPA) has completed the "Municipal Separate Storm Sewer System Permit Improvement Guide." The primary purpose of this guidance document is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) permits.

This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. The Guide also includes recommendations for permit writers on how to tailor the language depending on the type of permit. For example, permits covering traditional municipalities may contain different permit provisions than those covering non-traditional entities like departments of transportation, universities, and prisons.

I ask that permit writers review the permit language and corresponding discussion presented in this Guide and consider how to incorporate this, or similar, language into their MS4 permits. Some modification of the language may be necessary to make it suitable for use with specific MS4 permits, and to better tailor it to meet the needs and goals of the various permitting authorities.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as protective in meeting the applicable regulations. EPA expects the permitting authority to continue to make significant progress and ensure that the intent of the regulations or more stringent requirements is captured in the permit.

In addition, EPA would like to particularly stress the following key principles:

- Permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation.
- Permits should contain a performance standard for post-construction that is based on the objective of maintaining or restoring stable hydrology to protect water quality of receiving waters or another mechanism as effective.

EPA has begun a rulemaking to strengthen the stormwater program. Using this Guide to improve permits represents the direction that EPA is taking to strengthen the program. This Guide is a living document that will be updated as new information for improving the stormwater program is obtained.

I appreciate your continued efforts in strengthening the NPDES municipal stormwater program. If you have any questions about this Guide or suggestions for further improvements, please contact Rachel Herbert of my staff at herbert.rachel@epa.gov or call her at 202-564-2649.

Sincerely,


Linda Y. Boornazian, Director
Water Permits Division

CC: State Stormwater Coordinators
Association of State and Interstate Water Pollution Control Administrators

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INTRODUCTION & GETTING STARTED

Purpose

The primary purpose of the MS4 Permit Improvement Guide (Guide) is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) stormwater permits. The objective of the Guide is to facilitate the creation of MS4 permits which are clear, consistent with applicable regulations, and enforceable. This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. Permit language should include controls that identify specific actions permittees must perform to comply with the Permit Requirements.

This Guide focuses in large part on permits for small (Phase II) MS4s. However, while the contents of the Guide are generally organized consistent with the six minimum control measures (40 CFR 123.34(b)) applicable to Phase II MS4 permits, however, permit writers may find this Guide useful for Phase I MS4 permits. In addition, the Guide specifically addresses Phase I MS4 Permit Requirements with regard to the industrial program elements set forth in the Phase I regulations at 40 CFR 122.26(d)(2)(ii) and (iv)(C). These are addressed in Chapter 7. The Guide may also be useful for “non-traditional” MS4 permittees, such as departments of transportation (DOTs), universities and prisons.

EPA has developed a Stormwater Phase II Final Rule Fact Sheet Series (www.epa.gov/npdes/stormwater/swfinal) to assist permitting authorities and permittees in understanding the Phase II regulations. Further, EPA has developed the National Menu of Stormwater Best Management Practices (www.epa.gov/npdes/stormwater/menuofbmps) which provides descriptive information in fact sheets about various best management practices associated with the Phase II six minimum control measures.

The Guide was created by reviewing numerous MS4 permits and fact sheets from around the country. Some of the example permit and fact sheet language presented in this Guide has been adapted from these permits; in those instances where existing language that meets the purpose of this document was not available, EPA has crafted new language.

Contents of this Guide

This document is divided into parts, as noted above, based largely on the six minimum control measures required in the Phase II stormwater regulations (see 40 CFR 122.34(b)). Chapters 1 -6 address development and implementation of a stormwater management program (SWMP) and the six minimum control measures that must be included in the SWMP. Chapter 7 addresses industrial facilities programs relevant for Phase I MS4 permits. Chapter 8, Overall Evaluation and Adaptive Management, discusses reporting, evaluation, and tracking requirements. This Guide does not focus on the water quality provisions of the Clean Water Act, which may require more stringent requirements than those programmatic elements specified here.

Each chapter opens with an introduction providing a brief overview of relevant regulatory requirements pertaining to the subject of the chapter. Each chapter is then divided into sections in which the following topics are addressed:

- *Example Permit Provision* – This section includes example MS4 permit language. The language has been formatted and numbered in such a way that each section corresponds directly to a permit structured in accordance with the chapter sequence of this Guide. EPA developed these examples by first surveying existing EPA and State MS4 permit language and drawing upon agency experience in implementing permits. EPA has identified the source of the language (in footnotes) if adapted from specific permits.
- *Example Permit Requirement Rationale for the Fact Sheet* – This section describes the rationale for the example permit provision. This language can assist the permit writer in developing the fact sheet, which accompanies all NPDES permits; however, it is up to the permit writer to ensure that a complete and customized version of the fact sheet accompanies the permit. Example Permit Requirement Rationale for the Fact Sheet sections often describe “requirements” or steps that “must” be taken. To the extent this language is used in these sections, it is intended to describe requirements included in the example permit provisions. It does not mean that all permits “must” include the specific “requirement” described.
- *Recommendations for the Permit Writer* (included where appropriate) – This section discusses issues the permit writer should consider in determining how to use the example permit provisions.

How to Use this Guide

This guidance includes “example” MS4 permit language for specific program elements, but is not intended to be definitive or comprehensive for all MS4 Permit Requirements.¹ EPA recommends that permit writers review the example permit language presented in this guide and consider how to incorporate this, or similar, language into MS4 permits as appropriate. Each state may have different NPDES requirements along with varied experience overseeing MS4 programs, and MS4 permittees vary widely in storm water management experience and sophistication, size, topography, precipitation patterns, land use, receiving water conditions and other factors. In most instances, EPA anticipates that permit writers will modify the language to make it suitable for specific MS4 permits, and to tailor example provisions to meet the various needs and goals that apply.

When possible, this Guide has tried to provide examples that can be used for both Phase I and Phase II permits. However, in some instances EPA has provided suggestions for how the language can be tailored to better fit within the context of a Phase I or Phase II permit. In addition, EPA acknowledges that some language presented in this Guide may be more suitable for an individual permit rather than a general permit. While EPA has presented a discussion for ways the language could be altered to fit these scenarios in Recommendations for the Permit Writer sections, it is up to the permit writer to determine the best use of the material for the permit being crafted.

¹ For example, the guide does not explicitly address provisions for compliance with CWA section 402(p)(3)(B)(ii), water quality standards, applicable wasteload allocations in TMDLs or such other conditions as the permitting authority deems necessary. For information on integrating TMDLs into stormwater permits see USEPA’s DRAFT TMDLs to Stormwater Handbook (www.epa.gov/owow/tmdl/stormwater)

The example permit language in this Guide has been written as if the permit is a reissued permit and not an initial permit, since most MS4 permittees have been subject to NPDES permits for at least one permit term. Requirements to develop the initial SWMP are not included in this Guide since they would have been included in the first permit term. It is important that permit writers consider the different stages in the development and implementation of SWMPs when establishing permit conditions as well as the experience learned from other more advance programs. So, for example, this Guide includes brackets to indicate the place for an appropriate schedule or deadline rather than indicating specific timeframes in all instances. These examples are available to the permit writer, along with other resources such as the permittee's draft or existing SMWP document, annual reports, prior permit experience, receiving water quality information and the permit writer's best professional judgment, to issue permits suitable for their specific MS4s.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as compliant in meeting the applicable regulations and protective of water quality standards. EPA expects the permitting authority to ensure that the intent of all applicable regulations is captured in the permit. States with more stringent permit provisions should continue to strengthen these provisions as the permits are reissued. This Guide includes suggestions on how to develop permit language for MS4 permittees. This Guide does not impose any new legally binding requirements on EPA, States, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this Guide and any statute, regulation, or permit the statute, regulation or permit controls.

Terminology: SWMP and SWMP Document

This guide uses the term SWMP to refer to the stormwater management program that is required by the Phase I and Phase II regulations to be developed by MS4 permittees. The SWMP document is the written plan that is used to describe the various control measures and activities the permittee will undertake to implement the stormwater management program.

Preparing to Write an MS4 Permit

Most Phase II MS4 permittees are regulated under a general permit (with some exceptions where individual permits have been used for Phase II and non-traditional MS4 permittees). Phase I MS4 permittees are regulated under individual permits, and can include multiple co-permittees. EPA regulations require that initial MS4 permits (i.e. first permit term) set the foundation of the permittee's SWMP. For Phase II MS4 the focus is on the six minimum control measures in 40 C.F.R. 122.34(b), while the Phase I MS4 permittees are informed by the regulations at 40 C.F.R. 122.26(d). See Chapter 1 of this Guide.

As the permit writer prepares to reissue an MS4 permit, regardless of whether the permit is an individual or general permit, EPA recommends that the permit writer review, at a minimum, the following sources of information:

Past annual reports

For currently regulated MS4s, annual reports submitted by the permittee can include information that will help permit writers develop more specific and measurable Permit Requirements. The most recent annual report is usually the most helpful to review, but additional annual reports can be reviewed if time allows. If the permit writer is developing a general permit, a broad selection of

annual reports from various permittees should be reviewed. In particular, EPA recommends that the permit writer review, at a minimum, the following specific information:

Areas of obvious strengths or weaknesses in the SWMP

- For example, is the permittee vague about specific activities (often an indicator of a weak program area), or is the permittee clearly meeting the requirements of the permit and/or going above and beyond the minimum requirements?

Trends or common compliance problems

- For example, does the permittee analyze the data to assess the most common compliance problems, and then modify their controls/programs to address these problems? For example, do they use the common compliance issues identified to target their training and outreach/education efforts for construction operators?

Level of implementation of SWMP activities (e.g., frequency and numbers of inspections, frequency of catch basin cleaning, street sweeping)

- Does the permittee report the total universe when reporting the quantity of an activity achieved? For example, if the MS4 is required to conduct industrial inspections, does it report it did 100 inspections (which may be good or bad, depending on how many it was required to inspect), or that it did 100 out of 5,000 (only 2% of the total)?

Water quality priorities for the permittee (e.g. impaired waters, TMDLs, high quality waters)

- Does the permittee's annual report describe priority pollutants for impaired waters and other water quality programs and what was done to reduce and/or eliminate their contact with stormwater? Does the SWMP target both impaired and high quality waters?

Specific sources or pollutants of concern permittee is currently focusing on

- Does the SWMP target pollutants of concern in its activities?

Level and type of enforcement currently being used by permittee

- Does the annual report provide data and summary information on the different types of enforcement actions taken (how many verbal warnings, written notes, fines, etc)?

Any trends (i.e. water quality, compliance, control measure implementation levels) being reported by Permittees which indicate success or failure of particular SWMP components

- Does the permittee analyze the data, or just report the data in the MS4 annual report?

Types of measurable goals being applied and achieved by permittees

- Has the permittee met the measurable goals stated in the permit and SWMP?

Stormwater management program (SWMP)

Review the most current SWMP documents for potential gaps that may need to be specifically addressed in the reissued MS4 permit. EPA's *MS4 Program Evaluation Guidance* (available at www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf) can be used to assess the key elements in a SWMP.

NPDES MS4 audit reports, construction/industrial/commercial site inspection reports

Review the findings from any MS4 audits conducted during the past permit term to help identify key issues that should be addressed in the next permit. For example, if the audits identified weak or missing program elements and other controls, these should be addressed in the reissuance of the permit. Construction, industrial, and/or commercial site inspection reports for facilities within the MS4's boundary should be reviewed to determine if there are common compliance issues that should be addressed in the MS4 permit (for example, more training, more frequent inspections, more complete inventory or prioritization, etc.).

Monitoring/Information on Quality of Receiving Waters

Review any monitoring data collected by the permittee or any other entity that has collected useful monitoring data to identify potential pollutants of concern. In addition, the most recent information on impaired waters and total maximum daily loads (TMDLs) for the permit area should be reviewed. If there are waste load allocations (WLAs) applicable to the permittee, these should be addressed in the permit. If no WLA has been assigned to the MS4, the permit writer should still consider pollutants of concern identified in 303(d) lists and TMDLs when developing Permit Requirements. Such information will help identify whether more targeted permit conditions are needed to reduce the discharge of these pollutants. This Guide does not specifically address the inclusion of TMDL requirements in MS4 permits.

Permit renewal application data or past notice of intent (NOI) information

Review any permit renewal applications or NOIs submitted to establish coverage for the previous permit term. Permit writers should consider the recommendations made in the EPA "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" (www.epa.gov/npdes/pubs/owm0125.pdf) published in 1996 (40 CFR Part 122; Federal Register, Volume 61, Number 155). This document provides information which clarifies the MS4 reapplication requirements and explains that MS4 permit applicants and NPDES permit writers have discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis.

Previous MS4 permit

Finally, review any past MS4 permits to identify where permit language should be revised or completely rewritten, for example, because language was vague. This MS4 permit improvement Guide should be used help strengthen key areas in the permit.

Note that if the MS4 permit is being issued for the first time, some of the above information will not exist yet, such as past annual reports or old SWMP documents.

MS4 Permit Writing Tips

There are a few general tips to keep in mind when writing MS4 permits. First, and most importantly, permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific

deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation. Doing so will allow permitting authorities to more easily assess compliance, and take enforcement actions as necessary.

For example, the following permit provision could be strengthened: “The permittee shall demonstrate compliance with this Permit through the timely implementation of control measures and other actions to reduce pollutants in discharges to the maximum extent practicable in accordance with their SWMP...” This permit provision does not define what “timely implementation” is, allowing the permittee to determine what is timely. Timely implementation could be, although it probably was not intended to be, interpreted as meaning up to five years, or it could mean that implementation must occur within six months. In addition, “other actions” are mentioned in this provision, but they are never described. If a permit requires “other actions,” these actions should be specifically described in the permit. Finally, it is important to strike a balance of providing specific Permit Requirements while still allowing the permittee come up with innovative controls.

In addition, vague phrases such as “as feasible” and “as possible” should be avoided because they result in inconsistent implementation by permittees and difficulties in permit authority oversight and enforcement. The permit writer’s role is to determine what is necessary to achieve in a permit term, and to develop clear, enforceable language that conforms to these determinations. Accordingly, the permit should set forth objective standards, criteria or processes, which will aid the permittee in complying with the permit, as well as the permitting authority in determining compliance in the MS4 permit.

In order for permit language to be clear, specific, measurable and enforceable, each Permit Requirement will ideally specify:

- *What* needs to happen
- *Who* needs to do it
- *How much* they need to do
- *When* they need to get it done
- *Where* it is to be done

For each Permit Requirement: “What” is usually the stormwater control measure or activity required. “Who” in most cases is implied as the permittee (although in some cases the permitting authority may need to specify who exactly will carry out the requirement if there are co-permittees). “How much” is the performance standard the permittee must meet (e.g., how many inspections). “When” is a specific time (or a set frequency) when the stormwater control measure or activity must be completed. “Where” indicates the specific location or area (if necessary). These questions will help determine compliance with the permit requirement.

The Use of Partnerships in MS4 Permits

Since the Phase II Rule applies to all small MS4s within an urbanized area regardless of political boundaries it is very likely that multiple governments and agencies within a single geographic area are subject to MS4 permitting requirements. For example, a city government that operates a small MS4 within an urbanized area may obtain permit coverage under a general Phase II permit while other MS4s in the same vicinity (such as a county, other cities, or a state DOT) may have individual Phase I MS4 permits. All permittees are responsible for permit compliance in their permitted area. Given the

potential for overlapping activities in close proximity, EPA encourages permittees in a geographic area to establish cooperative agreements in implementing their stormwater programs. Partnerships and agreements between permittees and/or other agencies can minimize unnecessarily repeating activities and result in using available resources as efficiently as possible. Using existing tools and programs instead of creating new ones can allow permittees to focus resources on high priority program components instead. In addition by forming partnerships, water quality can be examined and improved on a larger, consolidated scale rather than on a piece-meal, site-by-site basis.

In addition to requiring MS4 permittees to maintain records of program implementation such as inspection forms, monitoring data, dry weather screening reports, and notices of violation, EPA recommends that MS4 permits include requirements for permittees to summarize and analyze data and submit the analysis to the permitting authority. For example, as permittees are required to evaluate program compliance and appropriateness of best management practices, the permit could require permittees to address in annual reports questions such as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the permittee need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations) How has the permittee responded to these trends? Over the last year, how many construction site SWPPP reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

Also, although the stormwater Phase II rule requires reports, after the first permit term, reports are required to be submitted only in years two and four of the permit term. EPA strongly encourages annual reports for all permittees. (See 40 CFR 122.34(g)(3))

CHAPTER 1: ESTABLISHMENT OF THE STORMWATER MANAGEMENT PROGRAM

Introduction

An over-arching legal authority framework must be established in order for the SWMP to be effective. Ensuring that the permittee has established the legal authority to meet the requirements of the permit, created a well described enforcement response plan (ERP), and allocated adequate resources will set a necessary foundation for the SWMP.

Legal Authority

Permittees must have the authority to carry out all aspects of their stormwater management programs, including requiring the control of pollutants flowing into the MS4 system, having access to inspect sources of pollutant discharges, and being able to compel compliance and issue citations in the event of violations. Legal authority is especially critical for construction site runoff control, post-construction/permanent runoff control, industrial and commercial inspections, and illicit discharge detection and elimination programs. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B))

A permittee seeking permit coverage under individual permits is required to describe the legal authority it has to implement and enforce the SWMP. EPA recommends that general permits also require regulated MS4s to describe their applicable legal authority in their Notices of Intent (NOIs) (40 CFR 122.26(d)(2)(i), 122.33(b)). This legal authority is typically established through the adoption of one or more ordinances, or by modifying existing ordinances to provide the necessary authority. In some cases, a permittee might already have codified water quality provisions to address previous MS4 Permit Requirements; in this case, the permittee should be required to review existing codes and ordinances and prepare a statement detailing any necessary changes required to address the new MS4 permit requirements. Some permittees, such as, DOTs, universities, and prisons, may not have the authority to create and enforce ordinances. For these entities other mechanisms and authorities that they do possess should be utilized (e.g. DOT right-of-way permits).

Enforcement Measures and Tracking

Permittees are required by the Phase I and Phase II regulations to include in their ordinance, or other regulatory mechanism, penalty provisions to ensure compliance with construction and industrial requirements, to require the removal of illicit discharges, and to address noncompliance with post-construction requirements. In complying with these requirements, EPA recommends the use of enforcement responses that vary with the type of permit violation, and escalate if violations are repeated or not corrected. EPA recommends that the permittee be required to develop and implement an enforcement response plan (ERP), which clearly describes the action to be taken for common violations associated with the construction program, industrial and commercial program, or other SWMP programs. A well-written ERP provides guidance to inspectors on the different enforcement

Included Concepts

- ▶ Requirement to develop a stormwater management program
- ▶ Necessary legal authority
- ▶ Enforcement Measures and Tracking
- ▶ Adequate resources

responses available, actions to address general permit non-filers, when and how to refer violators to the State, and how to track enforcement actions.

Adequate Resources

Each permittee will fund its SWMP differently; therefore, in order to assess whether adequate resources have been allocated to carry out the requirements of the MS4 permit, the permitting authorities should require their permittees to submit an accounting of stormwater-related budgets, costs, and staffing resources updated annually. The fiscal analysis should document and explain changes to budgets from year to year and describe how each type of funding can and cannot be used for stormwater program activities. (See 40 CFR 122.26(d)(2)(vi)).

1.1 Requirement to Develop a Stormwater Management Program

Example Permit Provision

- 1.1.1 Requirement to Develop Program – The permittee must revise and update its written stormwater management program (SWMP) document and submit the SWMP to the *[insert name of Permitting Authority]* for review by *[insert deadline, e.g., within one year of permit issuance]*. The permittee must continue to implement the current SWMP until the revised SWMP is submitted. The SWMP does not contain effluent limitations; the limitations are contained in Parts *[insert relevant part of the permit]* of the permit.
- 1.1.2 Contents of the SWMP document – At a minimum, the permittee must include the following information in its SWMP document:
- a. Ordinances, or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit (see Part 1.1);
 - b. Statement by the permittee’s legal counsel certifying to adequacy of legal authority (see Part 1.2);
 - c. Written procedures describing how the permittee will implement provisions described in Parts 2-8.
- 1.1.3 Modifications to the SWMP document – The *[insert applicable name of permitting authority]* may notify the permittee of the need to modify the SWMP document to be consistent with the permit, in which case the permittee will have *[insert deadline, e.g. 90 days]* to finalize such changes to the program. The permittee is required to keep the SWMP document up to date during the term of the permit. Where the permittee determines that modifications are needed to address any procedural, protocol, or programmatic change, such changes must be made as soon as practicable, but not later than *[insert deadline, e.g. 90 days]*.

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to develop a SWMP document that describes how the permittee will meet the control requirements in the permit. (See 40 CFR 122.26(d)(2)(iv), 122.34(a)). The SWMP document is a consolidation of all of the permittee's relevant ordinances or other regulatory requirements, the description of all programs and procedures (including standard forms to be used for reports and inspections) that will be implemented and enforced to comply with this permit and to document the selection, design, and installation of all stormwater control measures. The permittee is required to submit its SWMP document to the permitting authority. If modifications to the SWMP are necessary then the permitting authority will notify the permittee.

Recommendation for the Permit Writer

The permit writer should include in this section the relevant parts of the permit that require specific descriptions or justifications to be included in the SWMP document. Also, permit writers may need to include an additional requirement regarding the submittal of the SWMP document since some information contained in the SWMP document is required to be submitted prior to the permittee obtaining permit coverage. In addition, permit writers should refer to the memo entitled *Interim Guidance on Implementation of NPDES Regulations for Storm Water Phase II for Small Municipal Separate Storm Sewer Systems in Response to Recent Ninth Circuit Decision in Environmental Defense Center, et al. v. EPA, No. 00-70014 & consolidated cases (9th Cir.)* for additional guidance on the implementation of regulations for Phase II MS4s (www.epa.gov/npdes/pubs/interim_guidelines_memo_final.pdf).

1.2 Requirement to Develop Adequate Legal Authority to Implement and Enforce Stormwater Management Program

Example Permit Provision

- 1.2.1 Within [insert deadline, e.g., one year from permit issuance] the permittee must review and revise its relevant ordinances or other regulatory mechanisms, or adopt any new ordinances or other regulatory mechanisms that provide it with adequate legal authority to control pollutant discharges into and from its MS4, and to meet the requirements of this permit.
- 1.2.2 To be considered adequate, this legal authority must, at a minimum, address the following:
- a. Authority to Prohibit Illicit Discharges – Prohibit and eliminate illicit connections and discharges to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-stormwater discharges except fire fighting discharges, discharges from NPDES permitted industrial sources and discharges not otherwise authorized under Part 1.2.2.b. of this permit.

- b. Allowable Non-Stormwater Discharges –Exceptions to the prohibition in Part 1.2.2.a. may include the following, only if they are considered non-significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.
- c. Authority to Prohibit Spills or Other Releases – Control the discharge of spills, and prohibit dumping or disposal of materials other than stormwater into the MS4.
- d. Authority to Require Compliance – Require compliance with conditions in the permittee’s ordinances, permits, contracts, or orders (i.e., hold dischargers accountable for their contributions of pollutants and flows).
- e. Authority to Require Installation, Implementation, and Maintenance of Control Measures – Require owners/operators of construction sites, new or redeveloped land, and industrial and commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of stormwater control measures consistent with *[insert references to applicable stormwater control measure manuals, guidance documents, etc.]*.
- f. Authority to Receive and Collect Information – The permittee must have the authority to request from operators of construction sites, new or redeveloped land, and industrial and commercial facilities information such as stormwater plans, inspection reports, and monitoring results, and other information deemed necessary to assess compliance with this permit. The permittee must also have the authority to review designs and proposals for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained.
- g. Authority to Inspect – The permittee must have the authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with local stormwater control ordinances/standards or requirements in this Permit.
- h. Response to Violations – The permittee must have the ability to promptly require that violators cease and desist illicit discharges or discharges of stormwater in violation of any ordinance or standard and/or cleanup and abate such discharges, including the ability to:
 1. Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within *[insert deadline, e.g. 48 hours]* of notification; or
 2. For uncontrolled sources of pollutants that could pose an environmental threat, require abatement within *[insert timeframe, e.g. 30 days of notification]*; or,

3. Perform the clean up and abatement work and bill the responsible party, if necessary.
 4. If a situation persists where pollutant-causing sources or activities are not abated, provide the option to order the cessation of activities until such problems are adequately addressed.
 5. When all parties agree that clean-up activities cannot be completed within the timeframe provided, determine a new timeframe and notify the *[insert name of permitting authority]*.
- i. Monetary Penalties – The permittee must have the ability to:
 1. Levy citations or administrative fines against responsible parties either immediately at the site, or within a few days.
 2. Require recovery and remediation costs from responsible parties.
 - j. Civil/Criminal Penalties – The permittee must have the ability to impose more substantial civil or criminal sanctions (including referral to a city or district attorney) and escalate corrective response, consistent with its enforcement response plan developed pursuant to Part 1.3, for persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm.
 - k. Interagency Agreements – Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements or other similar agreements with other owners of the MS4, such as *[insert other applicable permittees]*.
- 1.2.3 The permittee must include as part of its written SWMP document a statement certified by its chief legal counsel that the permittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in this permit. This statement must include:
- a. Identification of all departments within the permittee’s jurisdiction that conduct stormwater-related activities and their roles and responsibilities under this permit. Include an up-to-date organizational chart specifying these departments, key personnel, and contact information.
 - b. Identification of the local administrative and legal procedures and ordinances available to mandate compliance with stormwater-related ordinances and therefore with the conditions of this permit.
 - c. A description of how stormwater related-ordinances are implemented and appealed.
 - d. A description of whether the municipality can issue administrative orders and injunctions, or whether it must go through the court system for enforcement actions.

Example Permit Requirement Rationale for the Fact Sheet

Adequate legal authority is required to implement and enforce most parts of the SWMP. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B)). Without

adequate legal authority the MS4 would be unable to perform many vital SWMP functions such as performing inspections and requiring installation of control measures. In addition, the permittee would not be able to penalize and/or attain remediation costs from violators.

Recommendations for the Permit Writer

A major difference between a traditional MS4 and a non-traditional MS4 (such as a DOT, military base, or university) is often the scope of legal authority available to the MS4. Non-traditional MS4 permittees often cannot pass “ordinances” nor do they have enforcement authority like a typical municipality, so legal authority may consist of policies, standards, or specific contract language. Non-traditional MS4 permittees also do not generally have the authority to impose a monetary penalty. Although these differences exist, just like traditional MS4s, non-traditional MS4s must have the legal authority to develop, implement, and enforce the program. Moreover, the scope of legal authority that may be exercised by MS4 operators that are municipalities may vary from state to state. Therefore, permit writers should tailor the legal authority section depending on the types of permittees covered and the scope of authority that may be exercised by the permittee. For example, non-traditional MS4 permittees often have authority over what their contracts require. Therefore, the permit could require that contracts for construction and maintenance activities include specific stormwater requirements that ensure the permittee’s requirements are met. In addition, cooperative agreements could be maintained with those permittees that do possess the legal authorities to enforce stormwater measures within the permittee’s MS4 boundary.

The discharge prohibitions listed in Part 1.2.2 are taken from the Phase II regulations and are the minimum requirements. Note that, unlike Phase II MS4s, Phase I MS4 permittees are required to address the sources of non-stormwater discharges in Part 1.2.2.b. when they are identified as sources of pollutants in stormwater discharges. (See 40 CFR 122.26(d)(2)(iv)(B)). The permit writer may choose to apply additional or more stringent prohibitions. For example, some states have chosen to prohibit discharges from street washing activities as they can be significant sources of pollutants such as oil and grease and heavy metals.

1.3 Enforcement Measures and Tracking

Example Permit Provision

- 1.3.1 The permittee must continue to implement, and revise within [*specify deadline for completion, e.g. 12 months of permit issuance*] if necessary, an enforcement response plan (ERP), which sets out the permittee’s potential responses to violations and addresses repeat and continuing violations through progressively stricter responses as needed to achieve compliance. The ERP must describe how the permittee will use each of the following types of enforcement responses based on the type of violation:
- a. Verbal Warnings – Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of the violation and required corrective action.

- b. Written Notices – Written notices of violation (NOVs) must stipulate the nature of the violation and the required corrective action, with deadlines for taking such action.
 - c. Escalated Enforcement Measures – The Permittee must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent), and to escalate enforcement responses where necessary to address persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm:
 - 1. Citations (with Fines) – The ERP must indicate when the permittee will assess monetary fines, which may include civil and administrative penalties.
 - 2. Stop Work Orders – The permittee must have the authority to issue stop work orders that require construction activities to be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
 - 3. Withholding of Plan Approvals or Other Authorizations – Where a facility is in non-compliance, the ERP must address how the permittee’s own approval process affecting the facility’s ability to discharge to the MS4 can be used to abate the violation.
 - 4. Additional Measures – The permittee may also use other escalated measures provided under local legal authorities. The permittee may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project’s bond or directly billing the responsible party to pay for work and materials.
- 1.3.2 Enforcement Tracking – The Permittee must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:
- a. Name of owner/operator of facility or site of violation
 - b. Location of stormwater source (i.e., construction project, industrial facility)
 - c. Description of violation
 - d. Required schedule for returning to compliance
 - e. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved in a timely manner
 - f. Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations)
 - g. Any referrals to different departments or agencies
 - h. Date violation was resolved.
- 1.3.3 Recidivism Reduction – The permittee is required to identify chronic violators of any SWMP component and reduce the rate of noncompliance recidivism. The permittee

must summarize inspection results by these chronic violators and include incentives, disincentives, or an increased inspection frequency at the operator's sites.²

Example Permit Requirement Rationale for the Fact Sheet

The permit requires permittees to have an established, escalating enforcement policy that clearly describes the action to be taken for common violations. The policy must describe the procedures to ensure compliance with local ordinances and standards, including the sanctions and enforcement mechanisms that will be used to ensure compliance. (See 40 CFR 122.26(d)(2)(i)). It is critical that the MS4 have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance. Enforcement responses to individual violations must consider criteria such as magnitude and duration of the violation, effect of the violation on the receiving water, compliance history of the operator, and good faith of the operator in compliance efforts. Particularly for construction sites, enforcement actions must be timely in order to be effective.

Recommendations for the Permit Writer

Typical enforcement mechanisms include verbal warnings, written NOVs, administrative fines and orders, stop work orders, and civil or criminal penalties. Some non-traditional MS4 permittees, such as DOTs and universities, may not have the authority to use the mechanisms described above. Therefore the enforcement requirements in the permit should take the permittee's enforcement limitations and abilities into consideration, allow for alternative mechanisms such as related contract obligations or right-of-way permits, and/or require entities that cannot enforce to coordinate with those entities that can. For example, if a DOT discovers an illicit discharge to the right-of-way, a mechanism should be in place for the DOT to communicate with the adjacent municipality to eliminate the discharge in a timely manner.

Some permit writers include specific language as to when permittees can refer violations of NPDES permits to the permitting authority. Because of the often similar control measures required in MS4 construction programs and NPDES CGP SWPPP requirements, permit writers want the permittee to make an honest effort at achieving compliance with their local requirements before referring a violator to the NPDES permitting authority. An example of permit language on NPDES referrals, which require the MS4 permittee to make a good faith effort at ensuring compliance by conducting at least two inspections and notices of violation, follows:

NPDES Permit Referrals—For those construction projects or industrial facilities subject to the *[insert name of applicable NPDES general construction/industrial permit]*, the permittee must:

² Adapted from 2009 San Francisco Bay Municipal Regional Stormwater Permit (Order No. R2-2009-0074; www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf) and the Los Angeles MS4 Permit (Part 3; www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ms4_permits/los_angeles/2001-2007/LA_MS4_Permit2001-2007.pdf)

- a. Refer non-filers (i.e., those facilities that cannot demonstrate that they obtained permit coverage) to the *[insert name of permitting authority]* within *[insert number of days, e.g. 30 days]* of making that determination. In making such referrals, the permittee must include, at a minimum, the following documentation:
 1. Construction project or industrial facility location.
 2. Name of owner or operator.
 3. Estimated construction project size or type of industrial activity (including SIC code if known).
 4. Records of communication with the owner or operator regarding filing requirements.

- b. Refer violations to the *[insert name of permitting authority]* provided that the permittee has made a good faith effort of progressive enforcement to achieve compliance with its own ordinances. At a minimum, the permittee's good faith effort must include documentation of two follow-up inspections and two warning letters or notices of violation. In making such referrals, the permittee must include, at a minimum, the following documentation:
 1. Construction project or industrial facility location
 2. Name of owner or operator
 3. Estimated construction project size or type of industrial activity (including SIC code if known)
 4. Records of communication with the owner or operator regarding the violation, including at least two follow-up inspections, two warning letters or notices of violation, and any response from the owner or operator

It is important to note that a referral to the permitting authority does not relieve the MS4 from its enforcement obligations. The MS4 must continue to work with the permitting authority, using all available enforcement authority in order to gain compliance.

1.4 Requirement to Ensure Adequate Resources to Comply with MS4 Permit

Example Permit Provision

- 1.4.1 Secure Resources – The permittee must secure the resources necessary to meet all requirements of this permit.

- 1.4.2 Annual Fiscal Analysis – The permittee must conduct an annual analysis of the capital and operation and maintenance expenditures needed, allocated, and spent as well as the necessary staff resources needed and allocated to meet the requirements of this permit, including any development, implementation, and

enforcement activities required. The analysis must include estimated expenditures for the reporting period, the preceding period, and the next reporting period and be submitted with the annual report.

- a. Each analysis must include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.
- b. Each analysis must include a narrative description of circumstances resulting in a [*insert percentage, e.g. 25 percent or greater*] annual change for any budget line items.
- c. Each analysis must include a description of the staff resources necessary to meet the requirements of this permit.

Example Permit Requirement Rationale for the Fact Sheet

The annual fiscal analysis will show the allocated resources, expenditures, and staff resources necessary to comply with the permit, and implement and enforce the permittee's SWMP. (See 40 CFR 122.26(d)(2)(vi)). The annual analysis is necessary to show that the permittee has adequate resources to meet all Permit Requirements. The analysis can also show year-to-year changes in funding for the stormwater program. A summary of the annual analysis must be reported in the annual report (see Section 8.4 and Appendix A). This report will help the Permitting Authority understand the resources that are dedicated to compliance with this permit, and to implementation and enforcement of the SWMP, and track how this changes over time.

Recommendations for the Permit Writer

Permit writers should be specific when requesting financial analysis information from the permittee. The Annual Report Template provided in this Guide includes basic questions that should be adequate for Phase II MS4s. However, more detailed information may be warranted from more established programs and larger Phase I MS4s.

Because stormwater is a component in many different program areas, it can often be difficult to get an accurate accounting of costs. For example, inspection staff may have multiple responsibilities in addition to stormwater inspections. Is it appropriate to count an entire inspector's time (i.e. full-time equivalent (FTE)) as a stormwater cost if the inspector is also doing building inspections? Also, some permittees count street sweeping as a stormwater compliance cost, while others consider their street sweeping costs as an aesthetic or air quality cost. Permittees should provide a detailed breakdown of costs, along with background or additional discussion so the permit writer knows what the costs include.

CHAPTER 2: PUBLIC EDUCATION AND OUTREACH/PUBLIC INVOLVEMENT

Introduction

The Phase II Regulations require MS4 permittees to develop programs to educate the public about the impact of stormwater discharges on local waterways and the steps that citizens, businesses, and other organizations can take to reduce the contamination of stormwater (40 CFR 122.34(b)(1),(2)). Phase I MS4 permittees were also required to describe their proposed public education programs as part of their initial permit application, but the regulations are not as specific as Phase II. (See 40 CFR 122.26(d)(2)(iv) (B), (D)(4) and (A)(6)).

Included Concepts

- ▶ Developing a comprehensive stormwater education/outreach program
- ▶ Involving the public in planning and implementing the SWMP

As the public gains a greater understanding of the benefits of stormwater management, an MS4 is likely to gain more support for the SWMP (including financial support) and increased compliance with the applicable regulatory requirements as the public understands how their actions impact water quality. Education and awareness programs help change human behavior with respect to reducing the amount of pollution generated from stormwater sources within the MS4 system. In addition to education, encouraging public participation in local stormwater programs can lead to program improvement as well as enabling people to identify and report a pollution-causing activity, such as spotting an illicit discharge.

2.1 Developing a Comprehensive Stormwater Education/Outreach Program

Example Permit Provision

2.1.1 The permittee must:

- a. Continue to implement, and revise if necessary within [*specify the time when the development of the program must be completed, e.g., within the first year after permit issuance*], a comprehensive stormwater education/outreach program.

The program must, at a minimum:

1. Define the goals and objectives of the program based on at least three high priority, community-wide issues (e.g. reduction of nitrogen in discharges from the MS4, promoting pervious techniques used in the MS4);
2. Identify and analyze the target audience(s);
3. Create an appropriate message(s) based on at least three targeted residential issues and three targeted industrial/commercial issues from the suggested list below (or three issues deemed more appropriate to the MS4):

Residential Community

- Residential car washing and auto maintenance control measures
- Off-pavement automobile parking
- Home and garden care activities (pesticides, herbicides, and fertilizers)
- Disposal of household hazardous waste (e.g. paints, cleaning products)
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Litter prevention
- Importance of native vegetation for preventing soil erosion
- Public reporting of water quality issues
- Community activities (monitoring programs, environmental protection organization activities, etc.)
- Pet and other animal wastes

Industrial/Commercial Community

- Automobile repair and maintenance Control measures
- Control measure installation and maintenance
- Lawful disposal of vacuum truck and sweeping equipment waste
- Pollution prevention and safe alternatives
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Equipment and vehicle maintenance and repair
- Importance of good housekeeping (e.g. sweeping impervious surfaces instead of hosing)
- Illicit discharge detection and elimination observations and follow-up during daily work activities
- Water quality impacts associated with land development (including new construction and redevelopment)
- Water quality impacts associated with road resurfacing and repaving

4. Develop appropriate educational materials (e.g. the materials can utilize various media such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, websites);
5. Determine methods and process of distribution;
6. Evaluate the effectiveness of the program; and
7. Utilize public input (e.g., the opportunity for public comment, or public meetings) in the development of the program.

- b. During the term of the permit, the permittee must distribute the educational materials, using whichever methods and procedures determined appropriate by the permittee, in such a way that is designed to convey the program's message to *[insert percentage or other appropriate numeric threshold, e.g., 20%]* of the target audience each year.
- c. Within *[insert deadline, e.g., within the permit term]*, the permittee must assess changes in public awareness and behavior resulting from the implementation of the program such as using a statistically valid survey and modify the education/outreach program accordingly.

- d. The permittee must assess its stormwater education/outreach program annually as specified in Part 8.3 of this permit. The permittee must adjust its educational materials and the delivery of such materials to address any shortcomings found as a result of this assessment.
- e. Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Without a focused and comprehensive program, outreach and education efforts will likely be poorly coordinated and possibly ineffective. The permit the permittee to develop an education/outreach program that addresses the six steps listed and also found in EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed* (www.epa.gov/watertrain/gettinginstep/). This guide explains the steps in developing an outreach plan, presents information on creating outreach materials, and provides tips in working with the media. The permittee is encouraged to follow this guide in developing its outreach strategy.

The public education and outreach program must be tailored and targeted to specific water quality issues of concern in the relevant community. These community-wide and targeted issues must then guide the development of the comprehensive outreach program, including the creation of appropriate messages and educational materials. The permit includes a list of potential residential and commercial issues, but the permittee may also choose other issues that contribute significant pollutant loads to stormwater.

The permittee is encouraged to use existing public educational materials in its program. Examples of public educational materials for stormwater are available at EPA's *Nonpoint Source Outreach Toolbox* (www.epa.gov/nps/toolbox). The permittee is also encouraged to leverage resources with other agencies and municipalities with similar public education goals.

Finally, the underlying principle of any public education and outreach effort is to change behaviors. The permittee must develop a process to assess how well its public education and outreach programs is changing public awareness and behaviors and to determine what changes are necessary to make its public education program more effective. This assessment of public education programs is typically conducted via phone surveys, but other assessment methods that quantify results can be used. The permittee is encouraged to use a variety of assessment methods to evaluate the effectiveness of different public education activities. The permit requires that the first evaluation assessment be conducted before the final year of the permittee's coverage under this permit, before the next permit is issued. The allows the permittee to make changes as appropriate before the next permit application is due, EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed* (www.epa.gov/watertrain/gettinginstep/) can provide useful information on setting up and conducting the evaluations.

Recommendations for the Permit Writer

EPA recommends that the requirement to identify high priority community-wide issues and targeted issues be set at least 3 to 6 months before the stormwater education/outreach program is to be implemented, so the permitting authority can review the issues and provide any feedback before the plan is completed.

The permit can be a means for increasing public awareness and understanding of stormwater impacts on local watersheds, including high quality watersheds that need protecting. EPA recommends that the permit writer consider requiring permittees to identify and describe issues, such as specific pollutants, the sources of those pollutants, impacts on biology, and the physical attributes of stormwater runoff, in their education/outreach program, which affect local watershed(s). Where applicable, the education/outreach program should identify and describe high quality watersheds in need of protection and the issues that may threaten the quality of these waters.

The list in Part 2.1.1.a(3) is not all-inclusive. Therefore, EPA recommends that the permit be written to allow the permittee to identify priority issue(s) not listed that may contribute a significant pollutant load to stormwater. For Phase I, individual permits, it may be appropriate for the permit writer to specify the priority issues based on known issues, monitoring data, historical trends, etc. Phase II general permits will likely need to allow for more flexibility in selecting priority issues.

In addition, the permit writer will need to consider that DOTs and other “non-traditional” MS4s will likely have different priority concerns than the ones identified in the categories above. In fact, the categories (residential and commercial/industrial) may also need to be changed. In these instances, the permit writer may want to consider having the non-traditional permittees work together with any local government MS4s in their area to maximize the program and cost effectiveness of the outreach.

The permit writer may consider specifying the mechanism the permittee is required to use to measure the awareness of and behavior related to issues concerning stormwater runoff by the general public, or targeted audiences within the general public. Examples of evaluations could include:

- Direct Evaluations
- Surveys
- Tracking the number of attendees
- Interviews
- Review of media clippings
- Tracking the number of stormwater-related calls/emails/letters received

Permit writers should consider whether it is appropriate to require a baseline assessment of the public’s awareness of stormwater issues, for example in the second year of the permit term, so that comparisons may be drawn in reference to the baseline. This would likely require the permittee to conduct two assessments in the first permit term that the assessment is required.

2.2 Involving the Public in Planning and Implementing the SWMP

Example Permit Provision

- 2.2.1 The permittee is required to involve the public in the planning and implementation of activities related to the development and implementation of the SWMP. At a minimum, the permittee must:
- a. Establish a citizen advisory group or utilize existing citizen organizations. The permittee may establish a stand-alone group or utilize an existing group or process. The advisory group must consist of a balanced representation of all affected parties, including residents, business owners, and environmental organizations in the MS4 area and/or affected watershed. The permittee must invite the citizen advisory group to participate in the development and implementation of all parts of the community's SWMP.
 - b. Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).
 - c. Ensure the public can easily find information about the permittee's SWMP.
- 2.2.2 Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater management programs can be greatly improved by involving the community throughout the entire process of developing and implementing the program. Involving the public benefits both the permittee itself as well as the community. By listening to the public's concerns and coming up with solutions together, the permittee will gain the public's support and the community will become invested in the program. The permittees will likewise gain even more insight into the most effective ways to communicate their messages.

This permit requires the involvement of the public, which includes a citizen advisory group or process to solicit feedback on the stormwater program, and opportunities for citizens to participate in implementation of the stormwater program. The citizen advisory group should meet with the local land use planners and provide input on land use code or ordinance updates so that land use requirements incorporate provisions for better management of stormwater runoff and watershed protection. Public participation in implementation of the stormwater program can include many different activities such as stream clean-ups, storm drain markings, and volunteer monitoring.

Permittees are encouraged to work together with other entities that have an impact on stormwater (for example, schools, homeowner associations, DOTs, other MS4 permittees). Permittees are also encouraged to use existing advisory groups or processes in order to implement these public involvement requirements.

Recommendations for the Permit Writer

Especially for Phase I permittees, permit writers may consider requiring more specific information such as requiring at least one contact that the public can reach (including phone number and/or e-mail address) be clearly posted on the website. The contact may be a general contact or a specific person. The permitting authority may want the MS4 to have a mechanism for the public to comment year round, not just at public meetings. This could be facilitated by a webpage and email or a stormwater hotline.

Some Phase II permittees may find it more difficult to establish and maintain a formal citizen advisory group simply because they tend to have smaller populations. The permit writer may want to provide flexibility for the Phase II permittees to utilize the public involvement mechanism which best suits their individual community. For example, groups which are already involved with other aspects of municipal governance or established events where input could be solicited (i.e. farmers markets, festivals) may serve to meet the objective of this section.

CHAPTER 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Introduction

Phase I (see 40 CFR 122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)) and Phase II stormwater management programs (see 40 CFR 122.26(d)(2)(iv)(B)) are required to address illicit discharges into the MS4 system. An illicit discharge is defined as any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except allowable discharges pursuant to an NPDES permit (40 CFR 122.26(b)(2)). In addition to requiring permittee to have the legal authority to prohibit non-stormwater discharges from entering storm sewers (CWA Section 402(p)(3)(B)) (see Chapter I), MS4 permits must also require the development of a comprehensive, proactive Illicit Discharge Detection Elimination (IDDE) program.

An effective IDDE program is more than just a program to respond to complaints about illicit discharges or spills. Permittees must proactively seek out illicit discharges, or activities that could result in discharges, such as illegal connections to the storm sewer system, improper disposal of wastes, or dumping of used motor oil or other chemicals.

Included Concepts

- ▶ IDDE program development
- ▶ MS4 mapping
- ▶ Identification of priority areas
- ▶ Field screening
- ▶ IDDE source investigations and elimination
- ▶ Public reporting of non-stormwater discharges and spills
- ▶ Illicit discharge education and training

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an updated map of the storm drain system and a formal plan of how to locate illicit discharges and how to respond to them once they are located or reported. The permittee must provide a mechanism for public reporting of illicit discharges and spills, as well as an effective way for staff to be alerted to such reports. Regular field screening of outfalls for non-stormwater discharges needs to occur in areas determined to have a higher likelihood for illicit discharges and illegal connections. Proper investigation and enforcement procedures must be in place to eliminate the sources of the discharges, as well. Finally, in order for the permittee to adequately detect and eliminate sources of illicit discharges, both field and office staff must be properly trained to recognize and report the discharges to the appropriate parties.

EPA recommends that permittees refer to the Center for Watershed Protection's guide on *Illicit Discharge Detection and Elimination (IDDE): A Guidance Manual for Program Development and Technical Assistance* (IDDE Manual, available at www.cwp.org) when developing an IDDE program.

3.1 IDDE Program Development

Example Permit Provision

- 3.1.1 The permittee must continue to implement a program to detect, investigate, and eliminate non-stormwater discharges (see Part 1.2.2), including illegal dumping, into its system. The IDDE program must include the following:

- a. An up-to-date storm sewer system map (see Part 3.2).
 - b. Procedures for identifying priority areas within the MS4 likely to have illicit discharges, and a list of all such areas identified in the system (see Part 3.3)
 - c. Field screening to detect illicit discharges (see Part 3.4)
 - d. Procedures for tracing the source of an illicit discharge (see Part 3.5)
 - e. Procedures for removing the source of the discharge (see Part 3.5)
 - f. Procedures for program evaluation and assessment (see Part 8.3)
 - g. Procedures to prevent and correct any on-site sewage disposal systems that discharge into the MS4.³
- 3.1.2 In implementing the IDDE program, the permittee may conduct such investigations, contract for investigation, coordinate with storm drain investigation activities of others, or use any combination of these approaches.
- 3.1.3 For non-traditional MS4 permittees, if illicit connections or illicit discharges are observed related to another operator's municipal storm sewer system then the permittee must notify the other operator within *[insert applicable deadline, e.g., within 48 hours]* of discovery.
- 3.1.4 If another operator notifies the permittee of an illegal connection or illicit discharge to the municipal separate storm sewer system then the permittee must follow the requirements specified in Part 3.5.4.
- 3.1.5 Written procedures for implementing this program, including those components described in Parts 3.1 – 3.7 must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

EPA stormwater regulations define "illicit discharge" as "any discharge to a municipal separate storm sewer that is not composed entirely of stormwater" except discharges resulting from fire fighting activities and discharges from NPDES permitted sources (see 122.26(b)(2)). The applicable regulations state that the following non-stormwater discharges may be allowed if they are not determined to be a significant source of pollutants to the MS4 : water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. If, however, these discharges are determined to be a significant source of pollution then they are prohibited.

Examples of common sources of illicit discharges in urban areas include apartments and homes, car washes, restaurants, airports, landfills, and gas stations. These so called "generating sites" discharge sanitary wastewater, septic system effluent, vehicle wash water, washdown from

³ Vermont Phase II General Permit (www.vtwaterquality.org/stormwater/htm/sw_ms4.htm)

grease traps, motor oil, antifreeze, gasoline and fuel spills, among other substances. Although these illicit discharges can enter the storm drain system in various ways, they generally result from either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system, spills, or "midnight dumping"). Illicit discharges can be further divided into those discharging continuously and those discharging intermittently.

One way of locating these dry weather discharges is to perform field screening of outfalls. If no rain has occurred prior to the screening then it is likely that any flow observed at an outfall is either groundwater or an illicit discharge. It is important to utilize resources effectively and to target field screening activities in priority areas that are the most common sources of illicit discharges. For example, municipalities with older neighborhoods should prioritize those areas for targeted investigation due to the likelihood of cross connections with the sanitary sewer. Older parts of the storm drain system may also be deteriorating and require repair or replacement.

In addition, it is important that permittees establish clear policies and procedures for tracing and eliminating illicit discharges to ensure that individual incidents are addressed consistently. These policies should include procedures to notify neighboring localities if a discharge is discovered either originating on or discharging to the neighboring storm sewer system.

Additional information is available in the Center for Watershed Protection's *IDDE Manual*.

Recommendations for the Permit Writer

In some instances the permit writer may choose to include more specific requirements. For example, if the priority areas are already known, then Part 3.1.1.a may be more specifically worded. In addition, regulations governing Phase I MS4 permits have somewhat different requirements including specific field screening procedures (40 CFR 122.26(d)(1)(iii)(D) and 122.26(d)(2)(iii)) and a program to detect and remove illicit discharges and improper disposal into the storm sewer (40 CFR 122.26(d)(2)(iv)(B)).

3.2 MS4 Mapping

Example Permit Provision

- 3.2.1 The permittee must maintain an up-to-date and accurate storm sewer system map.
- a. The storm sewer system map must show the following, at a minimum:
 1. The location of all MS4 outfalls and drainage areas contributing to those outfalls that are operated by the permittee, and that discharge within the permittee's jurisdiction to a receiving water
 2. The location (and name, where known to the permittee) of all waters receiving discharges from those outfall pipes. Each mapped outfall must be given an individual alphanumeric identifier, which must be noted on the map. When possible, the outfalls must be located using a geographic

position system (GPS) and photographs should be taken to provide baseline information and track operation & maintenance needs over time.⁴

3. Priority areas identified under Part 3.3
 4. Field screening stations identified under Part 3.4.2.a
- b. A copy of the storm sewer system map must be available onsite for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an up-to-date map of its storm drain system. This is critical in order to isolate the potential source of the non-stormwater discharges and the areas of potential impact. Ideally, the information would be available as a geographic information system (GIS) layer in a geo-locational database, however, paper maps are sufficient providing they have the necessary reference information.

The permit primarily requires the mapping of outfalls, drainage areas contributing to those outfalls, and receiving waters. The municipal facility inventory created to comply with the pollution prevention/good housekeeping requirements (see Part 6.1) must also be included either on this sewer system map or on a separate MS4 map.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a map indicating outfalls and the waters that receive the MS4 discharges. This map is to be used to identify priority areas that have a reasonable potential for illicit discharges. The mapping requirements should be adjusted based on any existing mapping of the MS4 that has already been completed. For example, Phase I mapping should have been initiated during the initial permit application process. This map should not be static, however, since it would need to be updated as development patterns change and new collection and discharge components of the MS4 are added. The mapping requirement could be supplemented by adding a requirement to “modify existing maps to clearly identify all receiving waters.”

3.3 Identification of Priority Areas

Example Permit Provision

- 3.3.1 The permittee must continue to identify the following as priority areas [*insert areas that may be more applicable to the jurisdiction*]:
- a. Areas with older infrastructure that are more likely to have illicit connections;

⁴ New Jersey Phase II General Permit (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf), with modifications

- b. Industrial, commercial, or mixed use areas;
- c. Areas with a history of past illicit discharges;
- d. Areas with a history of illegal dumping;
- e. Areas with onsite sewage disposal systems;
- f. Areas with older sewer lines or with a history of sewer overflows or cross-connections; and
- g. Areas upstream of sensitive waterbodies.

3.3.2 The permittee must document the basis for its selection of each priority area and create a list of all priority areas identified in the system. This priority area list must be updated [*insert frequency, e.g., annually*] to reflect changing priorities and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

The permit requires an evaluation of the permittee’s neighborhoods and land uses to identify areas that are more likely to have illicit discharges. These areas must be prioritized for more frequent screening and investigations. Each permittee will have a different set of priority areas: newer communities with modern infrastructure are less likely to have sewer cross-connections and illegal connections to the storm drain system, whereas towns with rural areas may place an emphasis on illegal dumping and onsite sewage disposal systems. Prioritization must be based not only on land use but also on prior history and frequency of problems.

The identification of priority areas must include “hotspots” or areas where dumping, spills, or other illicit discharges are a common occurrence. These hotspots will help identify potential field screening locations and may help target educational activities. For example, if evidence of motor oil dumping is found quite frequently and traced to the same apartment complex, information about motor oil disposal could be distributed to residents in response.

Recommendations for the Permit Writer

Phase I permittees should have been documenting information regarding high priority areas for several permit terms. In these instances the permit writer should require the permittee to continually evaluate and update the priority areas as development patterns change or new “hotspot” areas are found. If the permit writer has information regarding priority areas which are specific to the Phase I permittee (e.g. certain high priority watersheds or land use types which typically discharge a pollutant of concern) then those specific areas should be specified as high priority.

3.4 Field Screening

Example Permit Provision

- 3.4.1 The permittee must continue to implement and revise if necessary within *[specify deadline for completion]* a written dry weather field screening and analytical monitoring procedures to detect and eliminate illicit discharges to the MS4. These procedures must be included as part of the IDDE program, and incorporated into the permittee's SWMP document. Dry weather field screening and analytical monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations.
- 3.4.2 Conduct dry weather field screening and analytical monitoring. At a minimum, the permittee must:
- a. Identify a minimum of *[specify number]* stations within the priority areas it identified in Part 3.3.1 at which field screening and analytical monitoring will take place. In addition, if the permittee is made aware of non-stormwater discharges that occur during the permit term outside of the priority areas, the permittee must include field screening stations in those areas;
 - b. Conduct dry weather field screening and analytical monitoring at each station identified above at least once *[insert timeframe for dry part of year, or specify annually]*.
 - c. Sample runoff according to requirements outlined in (1) and (2) below if flow or ponded runoff is observed at a field screening station and there has been at least seventy-two (72) hours of dry weather. The permittee must also record general information such as time since last rain, quantity of last rain, site descriptions (e.g., conveyance type, dominant watershed land uses), flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).
 1. Field screening requirements: The permittee is required to conduct a field screening analysis for the following constituents. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136. *[insert specific indicator pollutants that the permittee is required to monitor for.]*
 2. Analytical monitoring requirements: In addition to field screening, the permittee is required to collect samples for analytical laboratory analysis of the following constituents for a minimum of *[insert percentage]* of the samples taken. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136. *[insert specific pollutants of concern that the permittee is required to monitor for]*
 3. Develop benchmark concentration levels for dry weather field screening and analytical monitoring results whereby exceedance of the benchmark will

require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the benchmark.

- d. Conduct a follow-up investigation under Part 4.5 if the benchmarks associated with the constituents listed above in Part 3.4.2.c(1) and (2) are exceeded; and
- e. Make and record all applicable observations and select another station from the list of alternate stations for monitoring if, after two subsequent field screening tests have been completed, the field screening station is dry (i.e., no flowing or ponded runoff).

3.4.3 The permittee must assess its IDDE program every [*specify deadline for completion, e.g., once per permit term*] to determine if updates are needed. Where updates are found to be necessary, the permittee must make such changes [*insert deadline for finalizing changes*].

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the development of a dry weather field screening and analytical monitoring program. The program must identify stations (e.g., outfalls) within the identified “priority areas” where the field screening will be conducted. At a frequency set by the permitting authority, the permittee must screen outfalls during dry weather and, if flow or ponded water is observed, collect a sample for field screening and analytical monitoring.

Visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source will assist permittees in determining the source of illicit discharges. For example, the presence of surfactants is an indicator that sewage could be present in the discharge (e.g., soaps being discharged into sewer system as an indicator that wastewater is being discharged). Specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH, and other chemicals may similarly be indicative of industrial sources.

The permit requires the permittee to develop benchmarks for dry weather screening and analytical monitoring results. An exceedance of the benchmark concentration level indicates the need to conduct a follow-up investigation. The results will help the permittee narrow down the possible sources causing the benchmark to be exceeded so that they can then be eliminated. This is a common protocol to trigger additional monitoring and/or implementation of BMPs at stormwater discharges (e.g. MSGP has sector-specific benchmark monitoring requirements).

Recommendations for the Permit Writer

There are many options for field screening programs available to the permit writer that will meet the requirements of the regulations. Phase I regulations require that permittees conduct initial field screening of the entire MS4 during the permit application process as well as on-going field screening activities during the life of the permit. Based on this historical information and data, permit writers may want to specify in Phase I individual permits which priority areas must be screened. They may

also want to specify how many outfalls or what percentage of the outfalls should be inspected during the permit term.

In addition, for new Phase II permittees, permit writers may want to require screening of all priority areas during the first permit term and then require on-going screening in the areas where illicit discharges were identified.

This permit language includes analytical monitoring at dry weather field screening locations. The monitoring required during field screening (Part 3.4.2.c.1.) should include appropriate indicator pollutants, i.e. pollutants that will indicate the presence of some sort of illicit discharge. For example, Phase II NPDES regulations suggest sampling for specific conductivity, ammonia, surfactant and/or fluorescence concentration, pH and other chemicals indicative of industrial sources.

Permit writers should select the additional pollutants to be monitored based upon specific pollutants of concern for the receiving water(s) and/or specific indicator pollutants which can assist the MS4 in the location of particular discharges of concern and the potential water quality impact of the discharge. For example, the Phase I San Diego MS4 Permit requires that permittees monitor the following parameters during field screening: total hardness, oil and grease, diazinon and chlorpyrifos, cadmium (dissolved), lead (dissolved), zinc (dissolved), copper (dissolved), Enterococcus bacteria, total coliform bacteria, and fecal coliform bacteria.

Permit writers should encourage or even require permittees to use the *CWP IDDE Manual* and/or EPA’s 2008 Multi-Sector General Permit (www.epa.gov/npdes/stormwater/msgp) to develop benchmarks for each parameter.

In the *IDDE Manual* it is strongly recommended that benchmarks be developed specifically for each area. As an example, the *IDDE Manual* lists the following benchmark concentrations (Table 3-1) to identify industrial discharges:

Indicator Parameter	Benchmark Concentration
Ammonia	>= 50 mg/L
Color	>= 500 units
Conductivity	>= 2,000 µS/cm
Hardness	<= 10 mg/L as CaCO ₃ or >= 2,000 mg/L as CaCO ₃
pH	<= 5
Potassium	>= 20 mg/L
Turbidity	>= 1,000 NTU

For comparison purposes, the chemical fingerprint for different flow types in Alabama is presented in Table 3-2. The chemical fingerprint for each flow type can differ regionally, so permittees should develop their own “fingerprint” library by sampling each flow type.

Flow Type	Hardness (mg/L as CaCO ₃)	NH ₃ (mg/L)	Potassium (mg/L)	Conductivity (µS/cm)	Fluoride (mg/L)	Detergents (mg/L)
Sewage	50 (0.26)	25 (0.53)	12 (0.21)	1215 (0.45)	0.7 (0.1)	9.7 (0.17)
Septage	57 (0.36)	87 (0.4)	19 (0.42)	502 (0.42)	0.93 (0.39)	3.3 (1.33)

Laundry Washwater	45 (0.33)	3.2 (0.89)	6.5 (0.78)	463.5 (0.88)	0.85 (0.4)	758 (0.27)
Car Washwater	71 (0.27)	0.9 (1.4)	3.6 (0.67)	274 (0.45)	1.2 (1.56)	140 (0.2)
Plating Bath (Liquid Industrial Waste)	14330 (0.32)	66 (0.66)	1009 (1.24)	10352 (0.45)	5.1 (0.47)	6.8 (0.68)
Radiator Flushing (Liquid Industrial Waste)	5.6 (1.88)	26 (0.89)	2801 (0.13)	3280 (0.21)	149 (0.16)	15 (0.11)
Tap Water	52 (0.27)	<0.06 (0.55)	1.3 (0.37)	140 (0.07)	0.94 (0.07)	0 (NA)
Groundwater	38 (0.19)	0.06 (1.35)	3.1 (0.55)	149 (0.24)	0.13 (0.93)	0 (NA)
Landscape Irrigation	53 (0.13)	1.3 (1.12)	5.6 (0.5)	180 (0.1)	0.61 (0.35)	0 (NA)

The number in parentheses after each concentration is the Coefficient of Variation.
Source: Robert Pitt data from CWP IDDE Manual

The permit writer may also want to require the permittee to analyze a certain number of discharge samples to characterize the concentration of certain pollutants in the different drainage areas. This characterization sampling would be in addition to any characterization sampling completed for the Phase I permit application. This type of sampling would not necessarily aid in the elimination of the source of the discharge, however, the data would be useful in characterizing the discharge from the MS4.

For those areas that have ponding or flow during dry weather, permit writers may consider allowing permittees the flexibility to look for indicators of an illicit discharge before conducting water quality tests due to baseline flow (e.g. baseflow, groundwater flow, irrigation return flows) in certain areas. In these cases, permit writers could require that sensory indicators (i.e. odor, color, turbidity, and floatables) be evaluated.

For additional guidance on field screening, the *IDDE Manual* describes an outfall reconnaissance inventory (ORI) to assess outfalls and conduct indicator monitoring to help identify illicit discharges.

Regardless of the field screening scheme, it is also very important to emphasize in the permit conditions that monitoring must be done in compliance with 40 CFR 136.

3.5 IDDE Source Investigation and Elimination

Example Permit Provision

- 3.5.1 The permittee is required to develop written procedures for conducting investigations into the source of all identified illicit discharges, including approaches to requiring such discharges to be eliminated.
- 3.5.2 Minimum Investigation Requirements – At a minimum, the permittee is required to conduct an investigation(s) to identify and locate the source of any continuous or

intermittent non-stormwater discharge within [*specify time period*] of becoming aware of the illicit discharge.

- a. Illicit discharges suspected of being sanitary sewage and/or significantly contaminated must be investigated first.
- b. Investigations of illicit discharges suspected of being cooling water, wash water, or natural flows may be delayed until after all suspected sanitary sewage and/or significantly contaminated discharges have been investigated, eliminated and/or resolved.
- c. The permittee must report immediately the occurrence of any dry weather flows believed to be an immediate threat to human health or the environment to [*insert state water quality emergency contact phone number*].
- d. The permittee must track all investigations to document at a minimum the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.

3.5.3 Determining the Source of the Illicit Discharge –The permittee is required to determine and document through its investigations, carried out in Part 3.5.1, the source of all illicit discharges. If the source of the illicit discharge is found to be a discharge authorized under [*insert NPDES discharge permit reference*] of an NPDES permit, no further action is required.

- a. If an illicit discharge is found, but within six (6) months of the beginning of the investigation neither the source nor the same non-stormwater discharge has been identified/observed, then the permittee must maintain written documentation for review by the permitting authority.
- b. If the observed discharge is intermittent, the permittee must document that a minimum of three (3) separate investigations were made to observe the discharge when it was flowing. If these attempts are unsuccessful, the Permittee must maintain written documentation for review by the permitting authority. However, since this is an ongoing program, the Permittee should periodically recheck these suspected intermittent discharges.⁵

3.5.4 Corrective Action to Eliminate Illicit Discharge – Once the source of the illicit discharge has been determined, the permittee must immediately notify the responsible party of the problem, and require the responsible party to conduct all necessary corrective actions to eliminate the non-stormwater discharge within [*specify deadline*]. Upon being notified that the discharge has been eliminated, the permittee must conduct a follow-up investigation and field screening, consistent with Part 3.4, to verify that the discharge has been eliminated. The permittee is required to document its follow-up investigation. The permittee may seek recovery and remediation costs from responsible parties consistent with Part 1.2, or require compensation for the cost of field screening and investigations. Resulting enforcement actions must follow the SWMP ERP.

⁵ New Jersey Phase II Permit (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The Clean Water Act, section 402(p)(3)(B)(ii) requires MS4 permits to “effectively prohibit non-stormwater discharges into the storm sewers.” The permit implements this requirement, in part by requiring the development of procedures to investigate and eliminate illicit discharges. The permittee must develop a clear, step-by-step procedure for conducting the investigation of illicit discharges. The procedure must include an investigation protocol that clearly defines what constitutes an illicit discharge “case” and when a case is considered “closed.” In many circumstances, sources of intermittent, illicit discharges are very difficult to locate, and these cases may remain unresolved. The permit requires that each case be conducted in accordance with the SOPs developed to locate the source and conclude the investigation, after which the case may be considered closed. A standard operating procedure (SOP) document is required in order to provide investigators with guidance and any necessary forms to ensure that consistent investigations occur for every illicit discharge incident.

Physical observations and field testing can help narrow the identification of potential sources of a non-stormwater discharge; however it is unlikely that either will pinpoint the exact source. Therefore, the permittee will need to perform investigations “upstream” to identify illicit connections to systems with identified problem outfalls.

Once the source of the non-stormwater discharge is determined through investigation, corrective action is required to eliminate the problem source. Resulting enforcement actions must follow the SWMP ERP. The permittee may conduct remediation activities on its own, in which case the permittee must require compensation for any and all costs related to eliminating the non-stormwater discharge. Non-traditional MS4 permittees may be limited in their ability to seek recovery.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a process to trace the source of illicit discharges and eliminate them. The regulations also state that appropriate enforcement procedures and actions must be included in this process.

3.6 Public Reporting of Non-Stormwater Discharges and Spills

Example Permit Provision

- 3.6.1 The permittee must promote, publicize, and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point, including phone numbers for complaints and spill reporting, and publicize to both internal permittee staff and the public. If 911 is selected, the permittee must also create, maintain, and publicize a staffed, non-emergency phone number with voicemail, which is checked daily.
- 3.6.2 The permittee must develop a written spill/dumping response procedure, and a flow chart or phone tree, or similar list for internal use, that shows the procedures for responding to public notices of illicit discharges, the various responsible agencies

and their contacts, and who would be involved in illicit discharge incidence response, even if it is a different entity other than the permittee.

- 3.6.3 The permittee must conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party to achieve and maintain compliance.⁶

Example Permit Requirement Rationale for the Fact Sheet

This provision serves to implement, in part, the statutory requirement that MS4 permits effectively prohibit non-stormwater discharges. Spills, leaks, sanitary sewer overflows, and illicit dumping or discharges can introduce a range of stormwater pollutants into the storm system. Prompt response to these occurrences is the best way to prevent or reduce negative impacts to waterbodies. The permittee must develop a spill response SOP that includes an investigation procedure similar to or in conjunction with the investigation SOP developed for illicit discharges in general (see Section 3.5). Often, a different entity might be responsible for spill response in a community (i.e. fire department), therefore, it is imperative that adequate communication exists between stormwater and spill response staff to ensure that spills are documented and investigated in a timely manner.

A stormwater hotline can be used to help permittees become aware of and mitigate spills or dumping incidents. Spills can include everything from an overturned gasoline tanker to sediment leaving a construction site to a sanitary sewer overflow entering into a storm drain. Permittees must set up a hotline consisting of any of the following (or combination thereof): a dedicated or non-dedicated phone line, E-mail address, or website.

Recommendations for the Permit Writer

Spills which occur due to municipal staff activities are considered illicit discharges, but, spill prevention could also be addressed in the municipal operations/good-housekeeping portion of the permit as in this Guide (Chapter 6).

Facilitating public reporting of illicit discharges is specifically required in the Phase I regulations and as a part of the plan to detect and address illicit discharge, EPA recommends that Phase II permittees also develop a venue to promote, publicize, and facilitate public reporting of these discharges.

It is also noteworthy that smaller Phase II MS4s may utilize outside agency resources for spill response and/or they may use a neighboring locality. In this case, permittees will need to coordinate with these agencies to ensure appropriate spill response occurs and the necessary documentation is completed.

⁶ San Francisco Municipal Regional Stormwater permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

3.7 Illicit Discharge Education & Training

Example Permit Requirement

- 3.7.1 The permittee must continue to implement a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. Contact information, including the procedure for reporting an illicit discharge, must be included in the permittee's fleet vehicles that are used by field staff. Training program documents must be available for review by the permitting authority.
- 3.7.2 By no later than [*insert applicable deadline, e.g., 6 months after permit authorization*], the permittee must train all staff identified in Section 3.7.1 above on the identification of an illicit discharge or connection, and on the proper procedures for reporting and responding to the illicit discharge or connection. Follow-up training must be provided as needed to address changes in procedures, techniques, or staffing. The permittee must document and maintain records of the training provided and the staff trained.⁷

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to train field staff, who may come into contact or observe illicit discharges, on the identification and proper procedures for reporting illicit discharges. Field staff to be trained may include, but are not limited to, municipal maintenance staff, inspectors, and other staff whose job responsibilities regularly take them out of the office and into areas within the MS4 area. Permittee field staff are out in the community every day and are in the best position to locate and report spills, illicit discharges, and potentially polluting activities. With proper training and information on reporting illicit discharges easily accessible, these field staff can greatly expand the reach of the IDDE program.

Recommendations for the Permit Writer

Permit writers may wish to require training of office staff (or all permittee staff), as well as field staff, as they can act as additional "eyes and ears" since they typically live in the community. The training should consist of how to identify illicit discharges and dumping, as well as the appropriate people to contact based on the type of discharge that is occurring.

Existing permittees (Phase I and Phase II) may have been training staff for several permit terms. For this reason, the permit writer may want the permittee to focus on annual "refresher" trainings for existing staff and new employees within a certain time of their hire date.

⁷ Washington State Phase I Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf)

CHAPTER 4: CONSTRUCTION

Introduction

MS4 permits must address construction-related requirements (and often more specific state requirements) found in the following Federal regulations – Phase I MS4 Regulations 40 CFR 122.26(d)(2)(iv)(D) and Phase II MS4 Regulations 40 CFR 122.34(b)(4). Specific Permit Requirements should vary based on state requirements, rainfall amounts or other site-specific factors, but, in general, the requirements imposed on MS4 permittees for stormwater management of discharges associated with construction activities consist of several common requirements.

Permits must require that the permittee enact, to the extent allowed by State, Tribal or local law, an ordinance or other regulatory mechanism as part of the construction program that controls runoff from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. As part of the ordinance or other regulatory mechanism, the permittee should provide commonly understood and legally binding definitions. These terms should be defined consistently across other related guidance and regulatory documents. Note that EPA’s recommended definitions addressing this requirement are included in Appendix B.

Permits must require that MS4 permittees ensure that construction site operators select and implement appropriate erosion and sediment control measures to reduce or eliminate the impacts to receiving waters. The permit can require that permittees develop their own standards and specifications, but often it is preferable to require the permittees to utilize existing guidance that is approved by the permitting authority.

The permit must require that the permittee establish review procedures for construction site plans to determine potential water quality impacts and ensure the proposed controls are adequate. These procedures must include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. In addition, the permit must include requirements for inspection and enforcement of erosion and sediment control measures once construction begins.

Finally, Phase I MS4 permits must require the development of educational materials and training for construction site operators, and EPA recommends that training on stormwater controls for construction site operators be mandated in Phase II MS4 permits as well. Training should address site requirements for control measures, local stormwater requirements, enforcement activities, and penalties for non-compliance.

Included Concepts

- ▶ Construction requirements and control measures
- ▶ Construction site inventory
- ▶ Construction plan review procedures
- ▶ Construction site inspections and enforcement
- ▶ MS4 staff training
- ▶ Construction site operator education and public involvement

4.1 Construction Requirements and Control Measures

Example Permit Provision

4.1.1 The permittee must continue to implement a program which requires operators of public or private “construction activities” to select, install, implement, and maintain stormwater control measures that comply with *[Insert reference to documents including any and all applicable erosion and sediment control, pollution prevention, and other stormwater requirements, including applicable CGP, State, and local requirements.]* “Construction activity” for this permit includes, at a minimum, all public and private construction sites that result in a total land disturbance of *[insert disturbance threshold – either one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale, or an alternative threshold that includes disturbances of less than one acre]*. Written procedures for implementing this program, including the components described in Parts 4.2 – 4.6, must be incorporated into the SWMP document. The permittee’s construction program must ensure the following minimum requirements are effectively implemented for all construction activity discharging to its MS4:

[Insert specific minimum requirements, such as:

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:
 - (1) Control stormwater volume and velocity within the site to minimize soil erosion;
 - (2) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;
 - (3) Minimize the amount of soil exposed during construction activity;
 - (4) Minimize the disturbance of steep slopes;
 - (5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;
 - (6) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible; and
 - (7) Minimize soil compaction and, unless infeasible, preserve topsoil.
- b. **Soil Stabilization.** Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed within a period of

time determined by the permittee. In arid, semiarid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee.

- c. **Dewatering.** Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:
 - (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
 - (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
 - (3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.
- e. **Prohibited Discharges.** The following discharges are prohibited:
 - (1) Wastewater from washout of concrete, unless managed by an appropriate control;
 - (2) Wastewater from washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials;
 - (3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,
 - (4) Soaps or solvents used in vehicle and equipment washing.
- f. **Surface Outlets.** When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater discharges from construction sites generally includes sediment and other pollutants such as phosphorus and nitrogen, turbidity, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. The permit requires MS4 permittees to require construction site operators at defined sites to meet certain minimum stormwater requirements relating to erosion and sediment control and pollution prevention, and to meet other restrictions imposed on them by the State, or local regulations. These minimum requirements clearly specify the expectations for addressing

erosion control, sediment control, and pollution prevention control measures at construction sites.

EPA's Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category (74 FR 62996, December 1, 2009) require construction site owners and operators to implement a range of erosion and sediment control measures and pollution prevention practices to control pollutants in discharges from construction sites. These standards will be required in state construction general permits as they are reissued. These standards are broadly applicable to all construction activity disturbing one or more acres. They provide an objective means of describing appropriate erosion and sediment control best management practices, pollution prevention controls on construction site waste and storage of building materials and other reasonable components of the permittee's program to reduce pollutants to the maximum extent practicable in stormwater from construction sites that discharge through the MS4.

Recommendations for the Permit Writer

The Phase II stormwater regulations require permittees to develop a construction site program addressing "land disturbance of greater than or equal to one acre." However, some states may have more stringent requirements that apply to some permittees, or the permit writer may have discretion to lower the one acre threshold if this threshold is too high for particular permittees. For example, smaller, built-out cities may have many small redevelopment projects that fall below the one acre threshold. In such cases, controlling construction site stormwater entering the MS4 to the maximum extent practicable may require stormwater controls at smaller sites. Permit writers should review available construction and planning data from the MS4 to determine an appropriate project size threshold.

The example permit provision's list of minimum requirements for erosion controls, sediment controls, and pollution prevention measures is intended to establish specific requirements to implement the broader requirements in the Phase II rule (40 CFR 122.24(b)(4)). The list of minimum requirements in the example permit provision are from EPA's Construction and Development Effluent Guidelines (published December 1, 2009) which will eventually be required in all NPDES stormwater permits issued to construction site operators. At a minimum, the permit should reference the applicable state standards and, where appropriate, any local standards as well. Permit writers may wish to modify these specific requirements based on current standards or guidance on construction site stormwater controls in the State.

4.2 Construction Site Inventory

Example Permit Provision

4.2.1 The permittee must continue to maintain an inventory of all active public and private construction sites that result in a total land disturbance of *[insert disturbance threshold from Part 4.1.1.]*. The inventory must be continuously updated as new projects are permitted and projects are completed. The inventory must contain

relevant contact information for each project (e.g., name, address, phone, etc.), the size of the project and area of disturbance, whether the project has submitted for permit coverage under *[insert name of applicable NPDES general construction permit]*, the date the permittee approved the *[insert name of local erosion and sediment control/stormwater plan]* in accordance with Part 4.3, and the permit tracking number issued by *[insert name of permitting authority]*. The permittee must make it available to the permitting authority upon request.

Example Permit Requirement Rationale for the Fact Sheet

To effectively conduct inspections, the permittee must know where construction activity is occurring. A construction site inventory tracks information such as project size, disturbed area, distance to any waterbody or flow channel, when the erosion and sediment control/stormwater plan was approved by the Permittee, and whether the project is covered by the permitting authority's construction general permit. This inventory will allow the permittee to track and target its inspections.

Recommendations for the Permit Writer

Because of state or local construction permitting requirements, many permittees have some system in place to track construction activity in their jurisdiction. If this is the first MS4 permit issued to the permittee, the permit writer should include a deadline for the development of the initial inventory.

Permit writers may want to request electronic copies of the inventory quarterly or yearly, if that information will be used by the State permitting or inspection staff.

4.3 Construction Plan Review Procedures

Example Permit Provision

- 4.3.1 The permittee must continue to require each operator of a construction activity to prepare and submit a *[insert name of local erosion and sediment control/stormwater plan]* prior to the disturbance of land for the permittee's review and written approval prior to issuance of a *[insert appropriate permit, i.e. grading or construction]*. The permittee must make it clear to operators of construction activity that they are prohibited from commencing construction activity until they receive receipt of written approval of the the plans. If the *[insert name of local erosion and sediment control/stormwater plan]* is revised, the permittee must review and approve those revisions.
- 4.3.2 The permittee must continue to implement site plan review procedures that meet the following minimum requirements:
- a. The permittee must not approve any *[insert name of local erosion and sediment*

control/stormwater plan] unless it contains appropriate site-specific construction site control measures that meet the minimum requirements in Part 4.1.1 of this permit.

- b. The stormwater pollution prevention plan (SWPPP) developed pursuant to *[insert name of applicable NPDES general construction permit]* may substitute for the *[insert name of local erosion and sediment control/stormwater plan]* for projects where a SWPPP is developed. The permittee is responsible for reviewing those portions of the SWPPP that comply with the *[insert name of local erosion and sediment control/stormwater plan]*.
- c. The *[insert name of local erosion and sediment control/stormwater plan]* must include the rationale used for selecting control measures, including how the control measure protects a waterway or stormwater conveyance.
- d. The permittee must use qualified individuals, knowledgeable in the technical review of *[insert name of local erosion and sediment control/stormwater plan]* to conduct such reviews.
- e. The permittee must document its review of each *[insert name of local erosion and sediment control/stormwater plan]* using a checklist or similar process.⁸

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the review and prior approval of all local erosion and sediment control plans/stormwater plans to ensure that construction activities adhere to the permittee's minimum stormwater control requirements. Adequate review of erosion and sediment control/stormwater plans is necessary to verify compliance with all applicable requirements in the permittee's ordinance or other regulatory mechanism, as well as compliance with control measure standards and specifications. A formalized review procedure ensures consistent review of plans by specifying the requirements for plans being submitted, the schedule for review, and general conditions for approval. The site plan review process also provides a way to track construction activities and enforce standards.

A good site plan review process provides the permittee with the opportunity to comment – early and often – on a project's proposed number, type, location, and sizing of stormwater control measures that will be in place prior to, during, and at the conclusion of active construction. It is important to keep in mind that a site plan is a “living document” that may change during the life of the project; however, it is critical that the site plan be adequately reviewed and initially based on established policy, guidelines, and standards. The plan is the framework for stormwater control implementation, as well as the basis of any enforcement action on a project site.

The permit requires the permittee to review plans before construction activity begins to ensure that the plans are consistent with the standards specified in Part 4.1.1. The permit language also includes some key requirements during the plan review process:

⁸ 2009 Ventura County, CA Phase I MS4 Permit
www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ventura_ms4/09-0057/Transmittal%20Letter%20and%20MS4%20Permit%20Order%20No%2009%200057.pdf

- If a SWPPP is developed for the State construction general permit, that plan may substitute for the local plan if it also includes/addresses the local requirements.
- The plan must include the rationale used for selecting or rejecting control measures (for example, why a silt fence was selected or why a sediment trap was not included).
- Finally, plan reviewers must be trained and must document their review. For example, this can be done by using a checklist or similar process.

Recommendations for the Permit Writer

Some MS4 permits include a requirement that, prior to approval of local permits, the permittee must verify that the construction site operator has existing coverage under the State’s Construction General Permit, if necessary. This requirement helps to reduce the number of non-filers for the State general permit by providing a check for NPDES CGP permit coverage at the local level.

4.4 Construction Site Inspections and Enforcement

Example Permit Provision

4.4.1 The permittee must continue to implement procedures for inspecting public and private construction projects in accordance with the frequency specified in Table 4-1 below:

Table 4-1: Inspection Frequencies

Site	Inspection Frequency
a. All sites [<i>insert a size threshold that is considered large for the MS4 if large projects are common, e.g. 5 acres</i>] or larger in size	Inspection must occur within [<i>insert number of days/hours, e.g. 48 hours</i>] of a [<i>insert significant rain event size, e.g. ½ inch rain event</i>] and no less than biweekly (every 2 weeks)]
b. All sites one (1) acre or larger that discharge to a tributary listed by the state/tribe as an impaired water for sediment or turbidity under the CWA section 303(d)	
c. Other sites one (1) acre or more determined by the permittee or permitting authority to be a significant threat to water quality*	
d. All other construction sites with one (1) acre or more of soil disturbance not meeting the criteria specified in (A),(B), or (C) above	Inspection must occur at least monthly
e. Construction sites less than one (1) acre in size	Inspection must occur as needed based on the evaluation of the factors that are a threat to water quality*

*In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-stormwater discharges; past record of non-compliance by the operators of the construction site; and [*insert other factors relevant to particular MS4*].

- 4.4.2 The permittee must adequately inspect all phases of construction.
- Prior to Land Disturbance: Prior to allowing an operator to commence land disturbance, the permittee must perform an inspection to ensure all necessary erosion and sediment controls are in place.
 - During Active Construction: During active construction, the permittee is required to conduct inspections in accordance with the frequencies specified in Table 4-1 in Part 4.4.1.
 - Following Active Construction: At the conclusion of the project, the Permittee must inspect all projects to ensure that all graded areas have reached final stabilization and that all temporary control measures are removed (e.g., silt fence).
- 4.4.3 The permittee must have trained and qualified inspectors (See Part 4.5). The permittee must also continue to follow, and revise as necessary, written procedures outlining the inspection and enforcement procedures. Inspections of construction sites must, at a minimum:
- Check for coverage under the *[insert name of applicable NPDES general construction permit]* by requesting a copy of any application or Notice of Intent (NOI) or other relevant application form during initial inspections.
 - Review the applicable *[insert name of local erosion and sediment control/stormwater plan]* and conduct a thorough site inspection to determine if control measures have been selected, installed, implemented, and maintained according to the plan.
 - Assess compliance with the permittee's ordinances and permits related to stormwater runoff, including the implementation and maintenance of designated minimum control measures.
 - Assess the appropriateness of planned control measures and their effectiveness.
 - Visually observe and record non-stormwater discharges, potential illicit connections, and potential discharge of pollutants in stormwater runoff.
 - Provide education and outreach on stormwater pollution prevention, as needed.
 - Provide a written or electronic inspection report generated from findings in the field
- 4.4.4 The permittee must track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required. Inspection findings must be documented and maintained for review by the permitting authority.
- 4.4.5 Based on site inspection findings, the permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance in accordance with the permittee's enforcement response plan required in Part 1.3. These follow-up and enforcement actions must be tracked and maintained for review by the permitting authority.⁹

⁹ 2007 San Diego Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The permit requires inspections of construction sites based on a prioritized ranking of sites (see 40 CFR 122.26(d)(2)(iv)(D)(3) and 122.34(b)(4)(ii)(F)). Larger construction sites and sites that discharge to a sediment impaired waterbody are inspected more frequently than small sites. In addition to inspections at a regular interval, inspections are required within a certain timeframe after a rain event.

Inspections are required before land disturbance to ensure erosion and sediment controls are in place and a plan has been developed, during active construction, and after the site has been stabilized. The permit language also contains specific requirements on what the inspection must include (such as a comparison of control measures in the approved plan to measures installed in the field).

Without adequate implementation and maintenance, stormwater controls will not function as designed. In order to ensure proper implementation and maintenance by site operators, a rigorous inspection protocol is necessary. This protocol must include a written SOP for site inspections and enforcement to ensure inspections and enforcement actions are conducted in a consistent manner. The SOP must include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, slope of the site, proximity to receiving waters, the characteristics of soils, and the water quality status of the receiving water. This will allow inspection resources and staff time to be used most effectively. Documentation of inspections is critical to track noncompliance and enforcement. Regularly scheduled inspections, as well as post-storm event inspections, are necessary to be sure that regular maintenance occurs as well as repairs after storm events.

Recommendations for the Permit Writer

Selecting an appropriate inspection frequency is, by necessity, a case-by-case exercise. Inspection frequencies for one permittee will not necessarily be appropriate for other permittees. For example, appropriate inspection frequencies may vary among different permittees depending on such factors as topography and rainfall patterns, including whether the MS4 is located in a wet or arid region and/or has distinct wet and dry seasons. Appropriate inspection frequencies may also vary seasonally or geographically within a single MS4 based on seasonal variations in rainfall or snowfall, or differing topographical or geographic conditions in different parts of the MS4 area.

For individual MS4 permits, permit writers should consider seasonal rainfall patterns, the presence and location of impaired streams or sensitive habitats, soils, topography, and other MS4-specific factors. In addition, permit writers should review current inspection frequencies, as well as inspection and enforcement records.

The permit writer should also note that the permit language will need to be modified if the permittee was not previously required to develop written procedures for the inspection and enforcement conducted at construction sites.

4.5 MS4 Staff Training

Example Permit Provision

- 4.5.1 The permittee must ensure that all staff whose primary job duties are related to implementing the construction stormwater program, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. The training can be conducted by the permittee or outside training can be attended, however, this training must include, at a minimum:
- a. Erosion and Sediment Control/Stormwater Inspectors:
 1. Initial training, held within the first permit year, regarding proper control measure selection, installation, implementation, and maintenance, as well as administrative requirements such as inspection reporting/tracking and use of the permittee's enforcement responses; and
 2. Annual refresher training for existing inspection staff to update them on preferred controls, regulation changes, permit updates, and policy or standards updates. Throughout the year, e-mails and/or memos must be sent out to update the inspectors as changes happen.
 - b. Other Construction Inspectors: Initial training must be held within the first permit year, on general stormwater issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance. Refresher training held at least once every two years.
 - c. Plan Reviewers:
 1. Initial training, held within the first permit year, regarding control measure selection, design standards, and review procedures; and
 2. Annual training regarding new control measures, innovative approaches, permit updates, regulation changes, and policy or standard updates.
 - d. Third-Party Inspectors and Plan Reviewers: If the permittee utilizes outside parties to conduct inspections and/or review plans, these outside staff must be trained per the requirements listed in Part 4.5.1.a (above).

Example Permit Requirement Rationale for the Fact Sheet

By setting up training for the permittee staff, the permittee can ensure that the erosion and sediment control requirements are understood and consistently applied since all staff will have been trained on the same information. The permit requires staff whose primary job duties are related to implementing the construction stormwater program to be trained. The training requirements vary by the type of staff. For example, erosion and sediment control inspectors must be trained annually on a range of topics, while other construction inspectors (such as building inspectors) will receive more general training.

The permittee can conduct the training or the training can be provided by another entity (such as a State erosion and sediment control class). Ideally, the training should include classroom presentations, in-field training, and follow-up evaluations to determine whether the training was effective.

Also, the permittee should consider providing training to other in-field municipal staff so that problems associated with flooding and sedimentation from construction sites can be properly reported and addressed.

4.6 Construction Site Operator Education & Public Involvement

Example Permit Provision

- 4.6.1 Construction Operator Education. The permittee must develop and distribute educational materials to construction site operators as follows:
- a. Each year, the permittee must either provide information on existing training opportunities or develop new training for construction operators on control measure selection, installation, implementation, and maintenance as well as overall program compliance.
 - b. The permittee must develop or utilize existing outreach tools (i.e. brochures, posters, website, plan notes, manuals etc.) aimed at educating construction operators on appropriate selection, installation, implementation, and maintenance of stormwater controls, as well as overall program compliance.
 - c. The permittee must make available appropriate outreach materials to all construction operators who will be disturbing land within the MS4 boundary. The permittees' contact information and website must be included in these materials.
 - d. The permittee must include information on appropriate selection, installation, implementation, and maintenance of controls, as well as overall program compliance, on the permittee's existing website.
- 4.6.2 Public Involvement.
- a. The permittee must adopt and implement procedures for receipt and consideration of information submitted by the public regarding construction projects. This includes, but is not limited to, the public reporting mechanisms described in Part 3.6.
 - b. The permittee must hold public meetings for all public projects that have planned disturbance greater than or equal to an acre.¹⁰

¹⁰ Eastern Washington MS4 Phase II Permit (Part 2 only) (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

Education of construction site operators regarding stormwater management and regulatory requirements is an essential part of controlling stormwater discharges from construction sites. Making brochures, guidance documents and trainings available will increase the knowledge of operators and compliance in the field and can help them choose the correct structural control and processes, correctly install the controls, and successfully implement control measures. The permit requires the permittee to provide appropriate outreach materials to construction site operators. These materials can be made available during the normal course of business (i.e. in BMP manuals, in plan notes, during meetings) or via brochures or websites. In addition, the permittee must either provide training or notify the operators of available training opportunities.

Public involvement requirements include the development of a hotline or other telephone number for the public to call regarding stormwater concerns at construction sites.

CHAPTER 5: POST-CONSTRUCTION OR PERMANENT/LONG-TERM STORMWATER CONTROL MEASURES

Introduction

Phase I MS4s are required to address new development and significant redevelopment in their SWMPs through controls to reduce pollutants in stormwater discharges after construction is completed. See 40 CFR 122.26(d)(2)(iv)(A)(2).

The Phase II regulations require regulated small MS4 operators to develop, implement, and enforce a program to address stormwater discharges from new development and redevelopment sites that disturb greater than or equal to one acre to the MS4 (including projects that disturb less than one acre that are part of a larger common plan of development or sale). The regulations also require that the MS4 ensure that control measures are installed and implemented that prevent or minimize water quality impacts. See 40 CFR 122.34(b)(5)(i)

As part of these Phase II requirements, the MS4 must:

- Develop and implement approaches to addressing post-construction stormwater discharges that include a combination of structural and/or non-structural controls;
- Adopt adequate legal authority to enable the MS4 to address post-construction stormwater discharges from new development and redeveloped sites; and
- Ensure adequate long-term operation and maintenance of applicable post-construction control measures. See 40 CFR 122.34(b)(5)(ii).

As of April 2010, most MS4 permits only require permittees to adopt a post-construction program with enforceable requirements designed to reduce stormwater impacts from new development and redevelopment, without specifying a performance standard. To meet this requirement many MS4s have adopted criteria in ordinances or other legally enforceable mechanisms based on already promulgated flood-control based standards (i.e., focused only on discharge rates). However, performance standards can be a very useful and meaningful mechanism in the post-construction toolbox to ensure that water quality objectives are met.

The example permit provisions that follow present the current thinking on how to strengthen the effectiveness of the permittee's stormwater program by preventing the harmful effects of increased stormwater flows and pollutant loads from new development and redeveloped sites on receiving waterbodies. EPA recognizes that there are a wide variety of approaches that some states have already

Included Concepts

- ▶ Post-construction stormwater management program
- ▶ Site performance standards
- ▶ Site plan review
- ▶ Long-term maintenance of post-construction stormwater control measures
- ▶ Watershed protection
- ▶ Tracking of post-construction stormwater control measures
- ▶ Inspections and enforcement
- ▶ Retrofit plan

taken to control discharges from new development and redeveloped sites, some of which are more stringent than the permit language recommended below. The language below includes components that EPA believes would provide focus and enforceability, and would bring about significant improvements in stormwater controls on site. However, the “maximum extent practicable” may be greater than is reflected in the example permit language below for some MS4s, and EPA encourages states, where possible, to go beyond these example provisions and to achieve even better watershed planning and water quality outcomes. For these reasons, this chapter presents the minimum permit provisions EPA currently recommends to be included in permits in order for permittees to reduce their discharges to the maximum extent practicable as well as the optional, more stringent, requirements.

5.1 Post-Construction Stormwater Management Program

Example Permit Provision

- 5.1.1 The permittee must continue to implement a program to control stormwater discharges from new development and redeveloped sites that disturb at least one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale) that discharge into an MS4 [*or insert smaller alternative size*]. The program must apply to private and public development sites, including roads.
- 5.1.2 The program must require that controls are in place that will infiltrate, evapotranspire, or harvest and use stormwater from the site to meet the performance standards in Part 5.2 to protect water quality.
- 5.1.3 Written procedures for implementing this program, including the components described in Parts 5.2 – 5.8, must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

The stormwater regulations require that an MS4 develop and implement a program to address post-construction discharges from new development and redeveloped sites, and ensure the long-term operation and maintenance of these controls (see Part 5.4 for the maintenance requirements). (See 40 CFR 122.34(b)(5)). The permit requires the use of specific stormwater controls, i.e., those that infiltrate, evapotranspire, or harvest and use stormwater, with the aim of maintaining or restoring the pre-development stormwater runoff conditions at the site.

Many traditional stormwater management practices, and the permit language that drives them, fail to address the hydrologic modifications that increase the quantity of stormwater discharges, and cause excessive erosion and stream channel degradation. Frequently the volume, duration, and velocity of stormwater discharges cause degradation to aquatic systems. Protecting and restoring the physical, chemical and biological integrity of receiving waters must be a central issue in stormwater permits. The recent report of the National Research Council (*Urban Stormwater Management in the United States*, National Academies Press, 2008, www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf) recommends that the NPDES stormwater

program examine the impacts of stormwater flow, treat flow as a surrogate for other pollutants, and includes the necessary control requirements in stormwater permits. Specifically the report recommends that the volume retention practices of infiltration, evapotranspiration and rainwater harvesting be used as primary stormwater management mechanisms. For this reason, EPA recommends use of a permit condition that is based on maintaining or restoring predevelopment hydrology although other forms of this permit condition maybe appropriate as well.

Additional information on the development of a post-construction program for Phase II permittees can be found in the Center for Watershed Protection’s *Managing Stormwater In Your Community: A Guide for Building an Effective Post-Construction Program* (available at www.cwp.org/postconstruction). Also, EPA’s green infrastructure website includes information on post-construction controls and programs (see www.epa.gov/greeninfrastructure).

5.2 Site Performance Standards

Example Permit Provision

- 5.2.1 The permittee must establish, implement and enforce a requirement that owners or operators of new development and redeveloped sites discharging to the MS4, which disturb greater than or equal to one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale), design, install, implement, and maintain stormwater control measures that infiltrate, evapotranspire, harvest, and use stormwater discharges.
- 5.2.2 Within [*insert deadline, e.g., 12 months, 24 months, etc.*] the permittee must require that stormwater discharges from such new development and redevelopment sites be managed such that post-development hydrology does not exceed the pre-development hydrology at the site, in accordance with the performance standard set forth in this paragraph. The SWMP must describe the site design strategies, control measures, and other practices deemed necessary by the permittee to maintain or improve pre-development hydrology.¹¹ [*Insert a new development performance standard, such as one or a combination of the following:*

Basis for Performance Standard	Description	Performance Standard
Rainfall	Minimum storm volume to be retained on site.	Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from [<i>insert standards, such as “the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation”</i>]. Discharge volume reduction can be achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration and/or evapotranspiration and any combination of the aforementioned practices. This first one inch of rainfall

¹¹ Big Darby Creek Watershed CGP, Part III.G.2.d. (web.epa.ohio.gov/dsw/permits/DarbyStormWater_Final_GP_sep06.pdf)

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		<i>must be 100% managed with no discharge to surface waters, except when the permittee chooses to implement the conditions in Part 5.2.5.d below.¹²</i>
<i>Rainfall</i>	<i>Minimum storm size to be retained on site.</i>	<i>Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to [insert standards, such as “the 95th percentile rainfall event”]. This objective must be accomplished by the use of practices that infiltrate, evapotranspire and/or harvest and reuse rainwater. The 95th percentile rainfall event is the event whose precipitation total is greater than or equal to 95 percent of all storm events over a given period of record.¹³</i>
<i>Recharge/Runoff</i>	<i>Hydrologic analysis.</i>	<i>Design, construct, and maintain stormwater management practices that preserve the pre-development runoff conditions following construction. The post-construction rate, volume, duration and temperature of discharges must not exceed the pre-development rates and the pre-development hydrograph for 1, 2, 10, 25, 50 and 100 year storms must be replicated through site design and other appropriate practices. These goals must be accomplished through the use of infiltration, evapotranspiration, and/or rainwater harvesting and reuse practices. Defensible and consistent hydrological assessments and modeling methods must be used and documented.¹⁴</i>
<i>Recharge</i>	<i>Groundwater recharge requirement.</i>	<i>Any “major development” project, which is one that disturbs [insert standards, such as at least one (1) acre of land or creates at least 0.25 acres of new or additional impervious surface], must comply with one of the following two groundwater recharge requirements:</i> <ul style="list-style-type: none"> <i>• Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or</i> <i>• Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater discharges volume from pre-construction to post-construction for the two-year storm is infiltrated.¹⁵</i>
<i>Impervious Cover</i>	<i>Limiting total impermeable surface (or effective impermeable surface)</i>	<i>Minimize total impervious cover resulting from new development and redevelopment to [insert standards, such as <10% of disturbed land cover and/or limit total amount of effective impervious surface to no more than 5% of the landscape].</i>

¹² West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹³ Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)

¹⁴ Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)

¹⁵ New Jersey Stormwater Management Rules, N.J.A.C. 7:8 (www.nj.gov/dep/rules/adoptions/2004_0202_njpdcs.pdf)

5.2.3 Incentives for Redeveloped Sites. When considered at the watershed scale, certain types of developed sites can either reduce existing impervious surfaces, or at least create less ‘accessory’ impervious surfaces. The Permittee may develop a program to allow adjustments to the performance standard for new development or redevelopment sites that qualify. A reduction of *[insert the amount of stormwater the Permittee can reduce for utilizing redevelopment principles, e.g. 0.2 inches from the one inch runoff reduction standard]* may be applied to any of the following types of development. Reductions are additive up to a maximum reduction of *[insert amount, such as 0.75 inches]* for a project that meets four or more criteria. The permittee may choose to be more restrictive and allow a reduction of less than *[insert amount, such as 0.75 inches]* if they choose. In no case will the reduction be greater than *[insert amount, such as 0.75 inches]*.

1. Redeveloped sites
2. Brownfield redeveloped site
3. High density (>7 units per acre)
4. Vertical Density, (Floor to Area Ratio (FAR) of 2 or >18 units per acre)
5. Mixed use and Transit Oriented Development (within ½ mile of transit)¹⁶

5.2.4 Additional Requirements and Exceptions: The permittee must implement the following additional requirements where applicable:

- a. A site that is a potential hot spot with the reasonable potential for contaminating underground sources of drinking water must provide treatment for associated pollutants (e.g., petroleum hydrocarbons at a vehicle fueling facility).
- b. A site that discharges or proposes to discharge to any surface water or ground water that is used as a source of drinking water must comply with all applicable requirements relating to source water protection and must not cause an exceedance of drinking water standards.¹⁷
- c. Sites may not infiltrate stormwater in areas of soil contamination.
- d. For projects that cannot meet 100% of the performance standard in Part 5.2.2 on site, two alternatives are available: off-site mitigation and payment in lieu. If these alternatives are chosen, then the permittee must develop and fairly apply criteria for determining the circumstances under which these alternatives will be available and establish reasonable schedules for mitigation and require payment in lieu of prior to project inception. A determination that standards cannot be met on site must include multiple criteria that would rule out fully meeting the performance standard in Part 5.2.2, such as: too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils; soil instability as documented by a thorough geotechnical

¹⁶ West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.3)
(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹⁷ West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.2)
(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

analysis; a site use that is inconsistent with capture and reuse of stormwater; or too much shade or other physical conditions that preclude adequate use of plants. Sites must still maximize stormwater retention on-site, before applying the remaining stormwater to one of the alternatives. In instances where alternatives are chosen, technical justification as to the infeasibility of on site management is required to be documented.¹⁸

Example Permit Requirement Rationale for the Fact Sheet

Developed land changes the hydrology of sites, leading to higher stormwater discharge volumes and higher pollutant loads. The purpose of this standard is to maintain or restore stable hydrology in receiving waters thereby protecting water quality by having post-construction hydrology mimic the natural hydrology of the area.

A simpler, but reasonably approximate ‘mimicking the natural hydrograph’ approach can typically be accomplished by retaining (as opposed to detaining stormwater for later discharge) on a developed site the volume of water that was retained prior to development, through the mechanisms of infiltration, evapotranspiration, and capture and use. By significantly reducing the volume of stormwater discharges, these mechanisms significantly reduce the discharge of pollutants in stormwater, making discharge volumes the ideal all-around focus and metric for stormwater management. These provisions must be clear about the retention requirement, e.g., an underdrained rain garden likely functions more as a detention and filtration system than an infiltration system.

In Part 5.2.3, the five types of development which qualify for incentives are redevelopment, brownfield redevelopment, high density, vertical density, and mixed use with transit oriented development. Redeveloping already degraded sites can reduce regional land consumption and minimize new land disturbance. Minimizing land disturbance and impervious cover is critical to maintaining watershed health. In addition to water quality benefits, cleaning up and reinvesting in brownfield properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment. The effect of low-density urbanization on watersheds and the hydrologic cycle is substantial. High-density development, including vertical density, slows land consumption rates and accommodates more land uses on a smaller footprint. Finally, mixing land uses and promoting transit-oriented development can directly reduce runoff since mixed-use developments have the potential to use surface parking lots and transportation infrastructure more efficiently, requiring less pavement.¹⁹

In Part 5.2.4.d, the permittee must establish clear and stringent criteria for the conditions under which payment in lieu and off-site mitigation could be used. These criteria must be related to physical constraints such as a combination of soils which limit infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of stormwater. Further, appropriate schedules for

¹⁸ *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.4)*
(www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

¹⁹ Adapted from the WV Phase II MS4 Fact Sheet
(www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx)

payment and implementation of mitigation measures must be established to ensure stormwater impacts are addressed in a timely manner.

Recommendations for Permit Writer

Many communities have adopted criteria based on already promulgated flood-control based standards (i.e., focused only on discharge rates). This example permit language instead promotes the concept that effective standards should be based on the objective of maintaining or restoring stable hydrology to protect the quality of receiving waters by having post-construction hydrology mimic the natural hydrology of the area. The permit language provides a number of example standards that can be used to achieve this objective.

Performance standards should take into account the wide variability in hydrologic conditions in different areas. Ideally, standards should reflect the local naturally-occurring hydrology with respect to runoff, infiltration, evapotranspiration, and storage – that is, the water balance that would be present in the absence of development. Key parameters, such as rainfall patterns, soil characteristics, and topography, can be used to establish likely ‘natural’ hydrology. Where maintaining or reestablishing such hydrologic conditions is infeasible, off-site mitigation, payment-in-lieu, or fee programs may be used. Based on current (2010) information, EPA recommends that permits allow for a combination of techniques that utilize infiltration, capture and use, and evapotranspiration as appropriate, rather than relying only on infiltration or some other technique alone to meet performance standards.

The permit writer could include a performance standard that stipulates that predevelopment hydrographs match post-development hydrographs. In order for this type of performance standard to be effective, the permit writer should make sure that the permit clearly spells out all variables of the hydrograph (volume, rate, duration, frequency) to be matched, and not just the discharge rate. Many current pre-post hydrology standards focus only on discharge rate, which is primarily a flood control approach. In addition, a pre-development condition should also be defined, and that condition should be one that is reasonably ‘natural’, rather than simply the conditions (perhaps already fairly impervious) that existed immediately prior to the current developed site. A calculator tool based on key hydrologic parameters (soil, rainfall, slope, and vegetation) or an on-site rainfall retention standard that is appropriate for that area can help the permittee determine what constitutes pre-development hydrology and the means by which it may be matched.

As contemplated in the example permit provisions, permit writers may want to consider the difference between new development and redevelopment sites, as well as differences among some types of developed sites, in establishing performance standards. From the standpoint of imperviousness at a watershed scale, redeveloped sites are usually more desirable than new development sites, which replace relatively naturally functioning green spaces with impervious surfaces such as roads, and parking lots. Certain types of development generate less impervious surfaces than others. For example, typically, there is little or no increase in net stormwater discharges when redeveloping underused properties such as vacant properties, brownfield sites, or greyfield sites, since new impervious cover replaces existing impervious cover. The net discharge increase from already developed properties would likely be zero since the site was already predominately impervious cover. In many cases, redeveloped sites break up or remove some portion of the impervious cover, converting it to pervious cover and allowing for some stormwater infiltration. Redevelopment sites can produce a net improvement in regional water quality by decreasing total impervious area and its

associated stormwater discharges. Redeveloped sites can also reduce regional land consumption. By building on underused, already degraded land, the pressure to convert previously undeveloped land is reduced. Therefore differential standards for new development and redeveloped sites, as well as for different types of developed sites, may be reasonable. However, they should be crafted to minimize creation of imperviousness at the watershed scale, and still include some reasonable level of stormwater management at the site scale.

Redevelopment is the act of improving by renewing or restoring any developed property that results in the land disturbance of one acre or greater, and that has one of the following characteristics:

- Land that currently has an existing structure, such as buildings or houses, or
- Land that is currently covered with an impervious surface, such as a parking lot or roof, or
- Land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

Infiltration may not be appropriate in all cases. For example, a site that is a potential hot spot with the reasonable potential for significant pollutant loading(s) may not be appropriate for stormwater infiltration. Hot spots may include commercial, industrial, institutional, municipal, or transportation related operations that may produce higher levels of stormwater pollutants, and/or present a higher level or risk for spills, leaks, or illicit discharges such as: gas stations, petroleum wholesalers, vehicle maintenance and repair, auto recyclers, recycling centers and scrap yards, landfills, solid waste facilities, wastewater treatment plants, airports, railroad stations and associated maintenance facilities, and highway maintenance facilities.

In addition, the permit writer may want to consider what type of flexibility to afford sites where the owner/operator is not able to meet the performance standard on site. For instance, if a site is constrained by size or previous impervious surfaces, such that the use of control measures that infiltrate stormwater is severely limited, the permit could allow alternatives for meeting the performance standard in other ways such as payment in lieu and off-site mitigation within the same watershed.

Off-site mitigation and payment in lieu programs are options that can be used in these instances. Off-site mitigation generally means that control measures may be implemented at another location, in the same watershed/watershed as the original project, and as approved by the regulatory agency. Payment in lieu programs generally mean that the developer pays a fee to the permittee which will then be applied to a stormwater control project, in lieu of installing the required control measures.

If the permit writer chooses to include an off-site mitigation or payment in lieu program in the permit, the permit writer could specify that the programs meet several criteria, for example, those described in the 2009 West Virginia Phase II General Permit Fact Sheet

www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx):

1. The permittee must establish clear and stringent criteria for the conditions under which these options are available that must be related to real physical constraints such as a combination of soils limiting infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of

stormwater. While one or two of these characteristics should not be adequate to qualify for the alternative, the combination of multiple constraints could;

2. A minimal requirement for at least [0.4 inch] of stormwater managed on-site;
3. A [1:1.5 ratio] of the amount of requisite stormwater not managed on site to the amount of stormwater required to be mitigated at another site, or for which in-lieu payments must be made;
4. If demonstrated to the permittee that it is completely infeasible to manage the remainder [0.4 inches], then the ratio for this unmanaged portion is [1:2].
5. The necessary tracking systems for both types of programs, including the necessary inventory of public and retrofit projects for off-site mitigation; and,
6. The establishment of a credible valuation structure for payment in lieu, i.e., what is the actual cost for the permittee to provide retrofits for the necessary amount of stormwater, not just a token payment. The purpose of these provisions is to disincentivize the use of alternatives unless really needed, but also to provide a financial foundation for implementation of public stormwater management projects, including retrofits where those needs have been identified.

Additional justification for the development types which qualify for these incentives can be seen in the West Virginia Phase II MS4 Permit Fact Sheet

(www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx).

5.3 Site Plan Review

Example Permit Provision

- 5.3.1 To ensure that all applicable new development and redeveloped sites conform to the performance standards required in Part 5.2, the permittee must continue to implement project review, approval, and enforcement procedures that include:
 - a. Procedures for the site plan review and approval process(es) that include inter-departmental consultations, as needed, and a required re-approval process when changes to an approved plan are desired; and
 - b. A requirement for submittal of 'as-built' certifications within 90 days of completion of a project.
- 5.3.2 The permittee must conduct site plan reviews, using the procedures described in Part 5.3.1, of all new development and redeveloped sites which will disturb greater than or equal to one acre [or a smaller threshold as set by the permitting authority] and discharge to the MS4 (including sites that disturb less than one acre that are part of a larger common plan of development or sale). The site plan review must specifically address how the project applicant meets the performance standards in Part 5.2 and how the project will ensure long-term maintenance as required in Part 5.4.

Example Permit Requirement Rationale for the Fact Sheet

Specific standards are a critical component of a stormwater management program. However, even the best requirements need to be supported by a review program to ensure that the standards are met. The example permit provision would require permittees to fully implement a comprehensive site plan review and approval program. To meet this requirement, the permittee must have the authority to withhold approvals when standards are not met.

Recommendations for the Permit Writer

The permit writer may want to consider adding a requirement for a pre-application concept plan meeting to occur (in addition to the requirement for the project applicant to submit a site plan for review). During this meeting the project land owner or developer, the project design engineer, and municipal planning staff could discuss the conceptual designs that would be used to ensure that they meet the performance standards. This meeting would ensure that stormwater and performance standards are addressed early in the development process. However, if this pre-application concept plan meeting is not consistent with local planning procedures, the permit writer could consider omitting this requirement.

5.4 Long-Term Maintenance of Post-Construction Stormwater Control Measures

Example Permit Provision

- 5.4.1 All structural stormwater control measures installed and implemented to meet the performance standards of Part 5.2 must be maintained in perpetuity. The permittee must ensure the long-term maintenance of structural stormwater control measures installed according to this Part through one, or both, of the following approaches:
- a. Maintenance performed by the Permittee. See part 6.4.
 - b. Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance agreement. The permittee must require the owner or operator of any new development or redeveloped site subject to the performance standards in Part 5.2 to develop and implement a maintenance agreement addressing maintenance requirements for any structural control measures installed on site to meet the performance standards. The agreement must allow the permittee, or its designee, to conduct inspections of the structural stormwater control measures and also account for transfer of responsibility in leases and/or deeds. The agreement must also allow the permittee, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from the property owner/operator when the owner/operator has not performed the necessary maintenance within thirty (30) days of notification by the permittee or its designee.

- 5.4.2 Verification of maintenance responsibilities. The permittee must require that property owners or operators of any new development or redeveloped site subject to the performance standards in Part 5.2 provide verification of maintenance for the approved structural stormwater control measures used to comply with the performance standards. Verification must include one or more of the following as applicable:
- a. The owner/operator's signed statement accepting responsibility for maintenance with a provision for transferring maintenance responsibility if the property is legally transferred to another party; and/or
 - b. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or
 - c. Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control stormwater management practices; and/or
 - d. Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control stormwater management practices.

Example Permit Requirement Rationale for the Fact Sheet

Appropriate operation and maintenance are critical aspects to the function of any suite of controls. In many cases, controls may be located on private property, and it is necessary to establish some provision to assure responsibility and accountability for the operation and maintenance of these controls.

The permittee must ensure maintenance of all structural stormwater control measures. In this Guide, structural controls also include many green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales.

Recommendations for the Permit Writer

Most non-traditional MS4 permittees will probably not have the legal authority to recoup costs where the owner/operator has not completed necessary maintenance. Permit writers may want to be more specific in this requirement to include other options for non-traditional MS4 permittees.

5.5 Watershed Protection

Example Permit Provision

- 5.5.1 When the Permittee revises its General Plan (or equivalent) or other relevant plans (e.g. Transportation Master, or Community Plan) they must include effective water

quality and watershed protection elements that require implementation of consistent water quality protection measures for new development and redeveloped sites within *[insert deadline]*. Examples of water quality and watershed protection elements to be considered include the following: *[insert principles and/or policies which are appropriate for the watershed such as,*

- Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by minimizing the creation, extension and widening of parking lots, roads and associated development.
- Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.
- Implement management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.
- Prevent disturbances of natural waterbodies and natural drainage systems caused by development, including roads, highways, and bridges.
- Avoid development in areas that are particularly susceptible to erosion and sediment loss.
- Implement standards to protect trees, and other vegetation with important evapotranspirative qualities.
- Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.
- Implement water conservation policies that will reduce both stormwater and non- stormwater discharges via storm sewer systems.²⁰
- Implement policies that encourage stormwater practices close to the source of the runoff rather than downstream and lower in the watershed.]

Example Permit Requirement Rationale for the Fact Sheet

Imperviousness has been shown to correlate with water quality impacts. In order to minimize water quality impacts, the permittee must examine their planning principles to manage the creation of impervious surfaces at the watershed level, such as reducing the footprint of streets and parking lots. Also, ecologically sensitive areas can protect water quality by acting both as filters that reduce pollutants in stormwater discharges and as sponges to reduce the impact on the ecosystem's hydrology. Thermal pollution is also a concern that can impact biota in waterways. Stormwater discharges from impervious surfaces are often characterized by higher temperatures than natural, pervious surfaces. Reducing the chances of further increasing this temperature by preserving, protecting, and restoring natural features that provide shading for the waterway can further help reduce thermal pollution. Whenever possible natural waterways

²⁰ West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)

must be protected and not disturbed by stormwater from developed sites. For example, areas that have a high potential for erosion must be avoided for development when possible. Protecting vegetation, native soils, and conserving water can also help ensure the hydrologic qualities of the site remain intact.

Consideration of stormwater impacts from development is critical during the planning phases of development. This not only includes planning on the site-level, but also with respect to discharges from the MS4 on the watershed level. To the extent possible, stormwater management must be an integral part of higher level planning documents that determine where and how development that will result in stormwater discharges to the MS4 should occur since these decisions affect water quality. Using land efficiently can result in better stormwater management by putting development where it is most appropriate. For example, by directing and concentrating new development in areas targeted for growth, communities can reduce or remove development pressure on undeveloped parcels and protect sensitive natural lands and recharge areas. Another strategy is redeveloping already degraded sites such as abandoned shopping centers or underutilized parking lots. In this case, the net increase in discharges from developed sites would likely be zero, and it would likely decrease, depending on the on-site infiltration practices used. Also, by allowing or encouraging denser development, less land is converted overall, and less total impervious area created.

Recommendations for the Permit Writer

Examining stormwater on a watershed basis and including watershed principles is an important part of protecting waterways in a holistic manner. Climate change may increase the size and frequency of storms in some area of the nation. Including watershed-type assessments and considerations as Permit Requirements will help the permittee better focus their efforts to ensure the best water protection outcomes for existing conditions and those anticipated future conditions. Therefore, permit writers should consider including watershed protection principles. Newer programs may not be ready for permit writers to include the exact example permit provision provided. If possible, permit writers should be as specific as possible for the needs of the watershed where the MS4 permittee is located. Permittees should be careful when installing new stormwater BMPs to ensure that there are not any negative, unintended consequences.

5.6 Tracking of Post-Construction Stormwater Control Measures

Example Permit Provision

5.6.1 Inventory of Post-Construction Stormwater Control Measures. The permittee must continue to maintain an inventory of all post-construction structural stormwater control measures installed and implemented at new development and redeveloped sites, including both public and private sector sites located within the permit area. The inventory must be searchable by property location (either on paper or electronic). New entries to the inventory must be made during the site plan review and approval process in Part 5.3.1.

5.6.2 Tracking Information. Each entry to the inventory must include basic information on each project, such as project name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries must include the following for each project:

- a. Short description of each stormwater control measure (type, number, design or performance specifications);
- b. Latitude and longitude coordinates of each stormwater control measure;
- c. Short description of maintenance requirements (frequency of required maintenance and inspections); and
- d. Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).

Based on inspections conducted under Part 5.7, the permittee must update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site. This inventory must be maintained and available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Creating an inventory of post-construction structural stormwater control measures, including tracking of specific information, will first enable permittees to know what control measures they are responsible for. Without this information the permittee will not be protecting water quality to their full potential since inspections, maintenance, and follow-up changes cannot be performed. Tracking information such as the latitude/longitude, maintenance and inspection requirements and follow-up will allow the permittee to be able to better allocate their resources for those activities that are immediately necessary. Although not required, including photographs will help the permittee assess how the control measure has changed since it was first created and will likely aid in determining proper maintenance and/or retrofitting opportunities if the measure is no longer providing the water quality benefits it was originally designed.

Recommendations for the Permit Writer

Permit writers may wish to specifically define the types of structural controls that must be included in the inventory. For example, rain barrels may be considered a structural control, but the MS4 likely does not need latitude and longitude coordinates of the rain barrels.

5.7 Inspections and Enforcement

Example Permit Provision

- 5.7.1 Inspection Frequency. To ensure that all stormwater control measures are operating correctly and are being maintained as required consistent with its applicable maintenance agreement, the permittee must conduct inspections of each project site covered under Part 5.2 performance standards, *[insert inspection frequency, e.g., at least one time during the permit term, 20% of sites per year, etc.]*. The inspections must be in accordance with those specified in the *[insert State manual that describes the maintenance of control measures]*. A description of inspection procedures must be included in the SWMP document.
- 5.7.2 Post-Construction Inspection. Within *[insert deadline, e.g., 1 week, 2 weeks, etc.]* of completion of construction of any project required to meet the Section 5.2 performance standards, the permittee must conduct a post-construction inspection to verify that the permittee's performance standards have been met. The permittee must include in its SWMP a procedure for being notified by construction operators/owners of their completion of active construction so that the post-construction inspection may be conducted.
- 5.7.3 Inspection Reports. The permittee must document its inspection findings in an inspection report. Each inspection report must include:
- a. Inspection date;
 - b. Name and signature of inspector;
 - c. Project location (street address, latitude/longitude, etc.) and inventory reference number (from inventory established in Section 5.6.1)
 - d. Current ownership information (for example, name, address, phone number, fax, and email)
 - e. A description of the condition of the structural stormwater control measure including the quality of: vegetation and soils; inlet and outlet channels and structures; embankments, slopes, and safety benches; catch basins; spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures;
 - f. Photographic documentation of all critical structural stormwater control measure components; and

- g. Specific maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and reinspection dates.
- The permittee must document and maintain records of inspection findings and enforcement actions and make them available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Inspection of post-construction control measures is key to ensuring the protection of water quality. If control measures are not inspected and maintained they could become sources of pollution rather than reducing pollution. By including detailed information in the inspection report, the permittee can better determine if maintenance is required and the permittee can have a snapshot of sorts to know the status of their control measures to prioritize funding.

Recommendations for the Permit Writer

Permit writers should clearly specify the requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as installing them in the first place. By having specific requirements, permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning. The permit writer may also want to add a prioritization scheme to the requirement to help the permittee determine what maintenance activities are priorities for protecting water quality and which ones are minor changes.

5.8 Retrofit Plan

Example Permit Provision

- 5.8.1 The permittee must develop a plan to retrofit existing developed sites that are impacting water quality. The retrofit plan must be developed within [*insert deadline, such as within two years of permit issuance*] and must emphasize controls that infiltrate, evapotranspire, or harvest and use stormwater discharges. The plan must include²¹:
- a. An inventory of potential retrofit locations, which considers, at a minimum:
 - Locations that contribute pollutants of concern to an impaired waterbody
 - Locations that contribute to receiving waters that are significantly eroded
 - Locations that are tributary to a sensitive ecosystem or protected area
 - Locations that are tributary to areas prone to flooding

²¹ Orange County Municipal Stormwater Permit (Section F.3.d) (www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.shtml)

- b. An evaluation and ranking of the inventoried locations to prioritize retrofitting which includes, at a minimum:
- Feasibility
 - Cost effectiveness
 - Pollutant removal effectiveness
 - Impervious area potentially treated
 - Maintenance requirements
 - Landowner cooperation
 - Neighborhood acceptance
 - Aesthetic qualities, and
 - Efficacy at addressing concern.

Example Permit Requirement Rationale for the Fact Sheet

It is clear that we cannot protect the nation's waters without also addressing degradation caused by stormwater discharges from existing developed sites. For that reason stormwater programs must include substantive retrofit provisions.

It is possible and reasonable to significantly improve water quality in many urban receiving waters. This requires more than just a new development and redeveloped sites program, however, which at best can only hold the line. To actually improve the quality of receiving waters it is necessary to mitigate discharges from existing developed sites, which generally means implementation of measures to bring about the retrofit the stormwater control measures at existing sites to retain most stormwater on site.

In addition, research indicates that most streambank restoration projects that actively stabilize eroding channels should not be implemented until after hydrologic retrofits have been completed that restore the hydrologic regime not concurrently with the implementation of the retrofits.

Municipal projects, such as traffic calming sites could also include stormwater retrofit components, such as curb bump outs that include bioretention features, rain gardens, and curb cuts.

Information on retrofit options and the development of a retrofit plan can be found in the Center for Watershed Protection's guidance on Urban Stormwater Retrofit Practices (available at www.cwp.org as Manual No. 3 under the Urban Subwatershed Restoration Manual Series).

Recommendations for the Permit Writer

Permittees may need a permit term or two to adequately develop and implement a retrofit plan. Some permittees may not be ready to have retrofit plans as part of their requirements. It is up to the permit writer to make this determination based on the specific information they have available on current programs. A retrofit plan should assess the areas where retrofitting is appropriate and will result in increased water quality protection and restoration. The permit writer should determine

the appropriate timeframe and language for a retrofit plan. For example, if the permittee was already required to develop a retrofit plan in a previous permit term the permit may specify a schedule for implementation rather than development.

CHAPTER 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

Introduction

Federal stormwater regulations (see 40 CFR 122.34(b)(6) and 40 CFR 122.26(d)(2)(iv)(A)) require the operator of a regulated MS4 community to develop a program to:

- Prevent or reduce the amount of stormwater pollution generated by municipal operations and conveyed into receiving waters.
- Train employees on how to incorporate pollution prevention/good housekeeping techniques into municipal operations.
- Identify appropriate control measures and measurable goals for preventing or reducing the amount of stormwater pollution generated by municipal operations.

The first step for the permittee is to evaluate and assess the areas and municipal facilities that it controls in order to determine which activities may currently have a negative impact on water quality and to find solutions for these activities. The simplest solution is to limit the number of activities that are conducted outside and exposed to stormwater.

Storm sewer systems need maintenance to ensure that structures within the storm sewer that are meant to reduce pollutants do not become sources of pollution. Regularly maintaining catch basins and cleaning storm sewer pipes prevent the accumulation of pollutants that are later released during rain events as well as blockages, backups, and flooding. Most permittees have an existing program to maintain the storm sewer infrastructure. EPA notes, however, that some of these programs have tended to focus on flood avoidance and complaint response rather than reducing water quality impacts from stormwater discharges.

The MS4 permit must require that the system be maintained to prevent the discharge of pollutants into receiving waters. System mapping and a schedule of regular maintenance are key to a successful pollution prevention program. EPA recommends establishing a tiered maintenance schedule for the entire storm sewer system area, with the highest priority areas being maintained at the greatest frequency. Priorities should be driven by water quality concerns and can be based on the land use within the MS4 area, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. It is also advisable to use spill and illicit discharge data to track areas that may require immediate sewer infrastructure maintenance. It is also important for material that is collected to be disposed of in a responsible manner.

Included Concepts

- ▶ Municipal facility and control inventory
- ▶ Facility assessment
- ▶ Development of facility-specific stormwater management SOPs and Implementation of facility stormwater controls
- ▶ Storm sewer system maintenance activities
- ▶ Flood management
- ▶ Pesticide, herbicide, and fertilizer application and management
- ▶ Training and education
- ▶ Contractor requirements and oversight

The procedures for storm sewer system operation and maintenance must be documented in the permittee's SOPs or similar type of documents, which are part of the permittee's SWMP. Employee training to carry out these pollution prevention measures is a required component of the program. The pollution prevention/good housekeeping/maintenance activities should be documented and, where possible, quantified (e.g., number and location of inspections and clean-outs, type and quantity of materials removed). Having permittees characterize the quantity, location, and composition of pollutants removed from catch basins can provide useful data that can later be used to assess the program's overall effectiveness, identify illicit discharges, and help the permittee better prioritize implementation activities in the future.

Specific pollution prevention requirements related to pollutant-generating activities such as landscaping techniques (including the application of pesticides, herbicides, and fertilizer) and operating and maintaining public streets, should also be included in the permit where applicable. For example, typical pollutants associated with street repair and maintenance include heavy metals, chlorides, hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylene), concrete dust, sand, deicers, sediment, and trash. The permitting authority should consider requiring alternative landscaping practices such as integrated pest management (IPM), xeriscaping, or mechanical (non-chemical) removal of unwanted plants. Other landscaping controls, such as mulch management, chemical storage, reduction of soil compaction, and erosion control, should also be considered. Training and educating municipal and contracted staff is also important to ensure that everyone is knowledgeable and proficient in the newest and most effective approaches to minimizing pollutant discharges from municipal facilities and activities.

Additionally, permits should require that water quality be considered when designing flood management projects, and that existing structural flood control devices are evaluated to determine if retrofitting the device to remove/reduce pollutants from stormwater is necessary and practicable.

6.1 Municipal Facility and Control Inventory

Example Permit Provision

6.1.1 Development of a Municipal Facility and Stormwater Control Inventory – The permittee must continue to update and maintain an inventory of municipally-owned or operated facilities and stormwater controls, including but not limited to the following:

- Composting facilities
- Equipment storage and maintenance facilities
- Fuel farms
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Landscape maintenance on municipal property
- Materials storage yards

- Pesticide storage facilities
- Public buildings, including schools, libraries, police stations, fire stations, municipal buildings, and similar buildings
- Public parking lots
- Public golf courses
- Public swimming pools
- Public works yards
- Recycling facilities
- Salt storage facilities
- Solid waste handling and transfer facilities
- Street repair and maintenance sites
- Vehicle storage and maintenance yards
- Municipally-owned and/or maintained structural stormwater controls

6.1.2 Documentation– The list of municipally-owned or operated facilities and stormwater controls must be maintained and available for review by the permitting authority.

6.1.3 Mapping – On a map of the area covered by the MS4 permit, the permittee must identify where the municipally-owned or operated facilities and stormwater controls are located. The map must identify the stormwater outfalls corresponding to each of the facilities as well as the receiving waters to which these facilities discharge. The permittee must also identify the manager of each facility and their contact information. The map must be maintained and updated regularly and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Municipally-owned or operated facilities serve as hubs of activity for a variety of municipal staff from many different departments. Some municipalities will have one property at which all activities take place (e.g., the municipal maintenance yard), whereas others will have several specialized facilities such as those listed above. A comprehensive list and map of such facilities will help staff responsible for stormwater compliance build a better awareness of their locations within the MS4 service area and their potential to contribute stormwater pollutants. The facility inventory will also serve as a basis for setting up periodic facility assessments (see Part 6.2) and developing, where necessary, facility stormwater pollution prevention plans (see Part 6.3).

Recommendations for the Permit Writer

Permit writers should tailor the facilities listed in the assessment as best they can to include the facilities most likely to be owned or operated by the permittee. It is highly likely that some of the facilities listed in the Permit Requirement would not apply to most non-traditional and/or non-municipal MS4s.

6.2 Facility Assessment

Permit Requirement

6.2.1 Municipally-owned or operated facility assessment:

- a. Comprehensive Assessment of Pollutant Discharge Potential –The permittee must review, reassess, and update the comprehensive assessment of all municipally-owned or operated facilities identified in Part 6.1 [*insert frequency, e.g., annually*] for their potential to discharge in stormwater the following typical urban pollutants: sediment, nutrients, metals, hydrocarbons (e.g., benzene, toluene, ethylbenzene and xylene), pesticides, chlorides, and trash. Other pollutants may be associated with, but not generated directly from, the municipally-owned or operated facilities, such as bacteria, chlorine, organic matter, etc. Therefore, the permittee must determine additional pollutants associated with its facilities that could be found in stormwater discharges. A description of the assessment process must be included in the SWMP document.
- b. Identification of “High Priority” Facilities – Based on the Part 6.2.1.a comprehensive assessment, the permittee must identify as “high-priority” those facilities that have a high potential to generate stormwater pollutants. Among the factors that must be considered in giving a facility a high priority ranking is the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (e.g., changing automotive fluids, vehicle washing), proximity to waterbodies, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include the permittee’s maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.
- c. Documentation of Comprehensive Assessment Results – The permittee must document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the comprehensive assessment. The documentation must include the results of the permittee’s initial assessment, any identified deficiencies and corrective actions taken, and a list of the “high priority” facilities identified per Part 6.2.1.b.

Example Permit Requirement Rationale for the Fact Sheet

The initial (“first time”) comprehensive assessment is necessary to identify which of the municipality’s facilities are most likely to contribute stormwater pollutants and which are in need of stormwater controls. The assessments will involve a detailed site inspection that can identify improperly stored materials, activities that should not be performed outside (e.g., changing automotive fluids, vehicle washing), and poor housekeeping practices.

Recommendations for the Permit Writer

If the permitting authority has an established site inspection protocol to be used in the comprehensive assessment, it should be included and referenced here. The list of pollutants in this section should be modified or expanded based on pollutants of concern in the permitting authority's jurisdiction.

6.3 Development of Facility-Specific Stormwater Management SOPs and Implementation of Facility Stormwater Controls

Example Permit Provision

6.3.1 Facility-specific Stormwater Management SOPs for "High Priority" Facilities:

- a. For each "high priority" facility or operation identified in Part 6.2, the permittee must develop a site-specific SOP that identifies stormwater controls (i.e., structural and non-structural controls, and operational improvements) to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater. At a minimum, the facility-specific SOP must include the stormwater control measures described below in Part 6.3.2, as well as inspection and visual monitoring procedures and schedules described in Part 6.3.3.
- b. A copy of the facility-specific stormwater management SOP must be maintained and be available for review by the permitting authority. The SOP must be kept on-site at each of the municipally-owned or operated facilities' offices for which it was completed. The SOP must be updated as necessary.
- c. The permittee must install, implement, and maintain all stormwater controls required per Part 6.3.2 of this permit and included in the facility's site-specific SOP.

6.3.2 Stormwater Controls for "High Priority" Facilities – The following stormwater controls must be implemented at all "high priority" municipally-owned or operated facilities identified in Part 6.2. A description of any controls included in this part and any standard operating procedures developed to comply with this part must be included as part of the of each facility's SOP:

- a. General good housekeeping – The following good housekeeping practices must be implemented for all facilities identified as "high priority":
 1. The permittee must keep all municipally-owned or operated facilities neat and orderly, minimizing pollutant sources through good housekeeping procedures and proper storage of materials.
 2. Materials exposed to stormwater must be covered where feasible (without creating additional impervious surfaces, if possible).
- b. De-icing material storage – The permittee must store salt and other de-icing materials in a permanent storage structure, unless stormwater runoff from the storage piles is not discharged, or if discharges from the piles are authorized under another stormwater permit. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal

tarping must be used as an interim control measure until the permanent structure is completed. If a permanent storage facility is not feasible, the permittee must provide a rationale to the permitting authority as to why and what alternate BMPs will be utilized instead.

Where a permanent storage structure is present, the permittee must perform regular maintenance and inspections of the permanent storage structure.

- c. Fueling operations – The permittee must continue to implement standard operating procedures for vehicle fueling and receiving of bulk fuel deliveries at municipally-owned or operated facilities with the goal of reducing the likelihood of spills, and providing spill controls in the event that accidental spills do occur.
- d. Vehicle maintenance – The permittee must continue to implement a standard operating procedure for vehicle maintenance and repair activities that occur at municipally-owned or operated facilities with the goal of reducing the likelihood of spills or releases and providing controls in the event that accidental spills do occur. The standard operating procedures must include regular inspections of all maintenance areas and activities.
- e. Equipment and vehicle washing – The discharge of equipment and vehicle wash wastewater to the MS4 or directly to receiving waters from municipal facilities is prohibited. The permittee may meet this requirement by either installing a vehicle wash reclaim system, capturing and hauling the wastewater for proper disposal, connecting to sanitary sewer (where applicable and approved by local authorities), ceasing the activity, and/or applying for and obtaining a separate stormwater permit.²²

6.3.3 Inspections and Visual Monitoring:

- a. Weekly visual inspections – The permittee must perform weekly visual inspections to ensure materials and equipment are clean and orderly, and to minimize the potential for pollutant discharge. The permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility, and records kept with the SWMP document. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.
- b. Quarterly comprehensive inspections – At least once per quarter, a comprehensive inspection of “high priority” facilities, including all stormwater controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

²² New Jersey Tier A Phase II MS4 Permit (NJ0141852) (www.state.nj.us/dep/dwg/pdf/Tier_A_final.pdf)

- c. Quarterly visual observation of stormwater discharges – At least once per quarter, the permittee must visually observe the quality of the stormwater discharges from the “high priority” facilities (unless climate conditions preclude doing so, in which case the permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied within three days or before the next storm event, whichever is sooner. Visual observations must be documented, and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

Example Permit Requirement Rationale for the Fact Sheet

Each municipal facility will require a different set of control measures depending on the nature of activities that occur there and the types of materials that are stored and used. Developing and maintaining a site-specific SOP for each facility will help to ensure that employees responsible for facility operation are aware of the stormwater controls required for the site.

There are a number of storage areas and activities that are common at municipal facilities that have a high potential for polluting stormwater:

- Deicing materials, particularly road salt, are easily liberated and transported by rainfall, and constituents such as chloride are not removed by most stormwater controls.
- Fueling and vehicle maintenance and storage areas are prone to spills and drips of various automotive fluids.
- Equipment and vehicle washing areas are designed to mix water with dirt and hydrocarbons, requiring special treatment of the wastewater (including pretreatment and diversion to the sanitary sewer, if allowed) and protection of wash areas from rainfall and runoff.

The best way to avoid pollutant discharges from these sources is to keep precipitation and runoff from coming into contact with stored chemicals and activity areas that use chemicals and materials, which can become sources of stormwater pollutants. For example, the permittee must cover stockpiles, create dedicated structures for stored materials, build berms around areas of pavement to prevent clean runoff from contacting contaminated areas, and maintain a minimum distance between stockpiles and stormwater infrastructure and receiving waters. These are just a few of the ways in which these potential pollutant sources can be protected from precipitation and runoff.

The permit requires that comprehensive site inspections be conducted quarterly, which is an appropriate frequency to ensure that material stockpiles that might be moved or utilized on a seasonal basis are protected from precipitation and runoff. Also, quarterly inspections will allow inspectors to observe different types of operations that occur at different times of the year (e.g., landscape maintenance crews are less active in the winter). Quarterly visual observations are required so that inspectors can see in real time the qualitative nature of the

stormwater discharge and so that corrective action can be taken where necessary to improve on-site stormwater controls.

The permit also specifies that inspection procedures, results, and controls for each facility be documented to ensure that the site inspections are consistent and that maintenance of stormwater controls remains part of the municipality's standard operating procedures. The requirement for an inspection log will allow the permitting authority to verify that periodic site inspections have been performed.

Recommendations for the Permit Writer

Neither Phase I nor Phase II regulations specifically require that MS4 permittees develop facility-specific stormwater management SOPs. However, both Phase I and Phase II require that permittees prevent or reduce pollutant discharge in stormwater from municipal facilities and activities. Requiring permittees to assess high priority facilities and develop appropriate controls for each is an effective way of requiring permittees to address potential sources of pollutants at facilities.

When setting frequency for facility inspections (see Part 6.3.3), the permit writer should consider the number of facilities and the size/complexity of the sites to ensure that enough time is available to complete the assessments.

The list of specific stormwater controls for municipal facilities will vary from place to place based on local and watershed priorities and climate considerations. The permit writer should specify stormwater controls that are appropriate for the local conditions. For example, if a permittee uses satellite locations for temporary storage of deicing materials during snow events, the permit writer may want to consider options other than the permanent storage requirement if the permittee uses the piles within a certain time frame and the piles are covered by temporary tarping or a similar control.

6.4 Storm Sewer System Maintenance Activities

Example Permit Provision

6.4.1 MS4 catch basin maintenance

- a. Assessment/prioritization of catch basins – The permittee must assign a priority to each of its catch basin inlets within its jurisdiction as one of the following:
 - Priority A – Catch basins that are designated as consistently generating the highest volumes of trash and/or debris
 - Priority B – Catch basins that are designated as consistently generating moderate volumes of trash and/or debris
 - Priority C – Catch basins that are designated as generating low volumes of trash and/or debris

The permittee must use information compiled from citizen complaints/reports to help in the determination of the appropriate priority level. A description of

the prioritization scheme must be included in the SWMP.

- b. Catch basin inspection and cleaning
 1. Based on the priorities assigned in Part 6.4.1.a., the permittee must inspect and clean catch basins in accordance with the following schedule:
 - Priority A – *[Insert cleanout frequency, e.g., 3 times per year]*
 - Priority B – *[Insert cleanout frequency, e.g., 2 times per year]*
 - Priority C – *[Insert cleanout frequency, e.g., 1 time per year]*

The permittee must develop a catch basin cleaning schedule based on the frequency specified in this permit, along with a list of each of its catch basins and the priority assigned to them per Part 6.4.1.a.
 2. In addition to catch basin cleanings performed above, the permittee must ensure that any catch basin that is inspected and found to be between one third and one half full of trash and/or debris must be cleaned within *[Insert cleanout frequency e.g., 1 week of discovery]*.²³ The permittee must maintain a log of all maintenance performed.
 3. The permittee must document that it has performed all required catch basin cleanings in a log that is to be made available for review by the permitting authority upon request.
- c. Catch basin labeling – The permittee must ensure that each catch basin includes a legible stormwater awareness message (e.g., a label, stencil, marker, or pre-cast message such as “drains to the creek” or “only rain in the drain”). Catch basins with illegible or missing labels must be recorded and re-labeled within *[insert number of days]* of inspection.
- d. Maintenance of surface drainage structures – The permittee must visually monitor permittee-owned open channels and other drainage structures for debris at least *[specify frequency, e.g., once per year]* and identify and prioritize problem areas, such as those with recurrent illegal dumping, for inspection at least *[specify frequency, e.g., three times per year]*. Removal of trash and debris from open channels and other drainage structures must occur *[insert frequency of open channel/drainage structure cleaning, e.g., annually]*. The permittee must document its drainage structure maintenance in a log that is to be made available for review by the permitting authority upon request.
- e. Disposal of waste materials – The permittee must develop a procedure to dewater and dispose of materials extracted from catch basins. This procedure must ensure that water removed during the catch basin cleaning process and waste material will not reenter the MS4.

6.4.2 Municipal activities and operations

- a. Assessment of municipal activities and operations

²³ EPA’s Office of Research and Development documented a threshold sump level of ½ as a break point where solids retainage was either erratic or negative (Catchbasin Technology Overview and Assessment #EPA-600/2-77-051 1977).

1. The permittee must maintain and revise as necessary the operation and maintenance (O&M) activity assessment. The following municipal O&M activities must be included in the assessment for their potential to discharge pollutants in stormwater:
 - Road and parking lot maintenance, including pothole repair, pavement marking, sealing, and re-paving
 - Bridge maintenance, including re-chipping, grinding, and saw cutting
 - Cold weather operations, including plowing, sanding, and application of deicing compounds and maintenance of snow disposal areas
 - Right-of-way maintenance, including mowing, herbicide and pesticide application, and planting vegetation
 - Municipally-sponsored events such as large outdoor festivals, parades, or street fairs
2. The permittee must identify all materials that could be discharged from each of these O&M activities. Typical pollutants associated with these activities include metals, chlorides, hydrocarbons (e.g. benzene, toluene, ethylbenzene, xylene), sediment, and trash.
3. The permittee must develop a set of pollution prevention measures that, when applied during municipal O&M activities, will reduce the discharge of pollutants in stormwater. These pollution prevention measures must include, at a minimum:
 - Replacing materials/chemicals with more environmentally benign materials or methods (e.g., use mechanical methods vs. herbicides, or use water-based paints or thermoplastics rather than solvent-based paints for stripping)
 - Changing operations to minimize the exposure or mobilization of pollutants (e.g., mulch, compost or landfill grass clippings) to prevent them from entering surface waters
 - Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters), consistent with Part 6.3.2.b

[If available in your particular State or the municipality, insert relevant section of SWMP, or other relevant document, that includes specific stormwater controls that must be used.]
4. The permittee must develop and implement a schedule for instituting the pollution prevention measures. At a minimum, with respect to all roads, highways, and parking lots with more than 5,000 square feet of pollutant-generating impervious surface area that are owned, operated, or maintained, the permittee must implement all pollution prevention measures by *[insert deadline]*.
5. The results of the assessments and pollution prevention measures, including schedules for implementation, must be documented and made available for review by the permitting authority upon request.

- b. Inspection of pollution prevention measures – All pollution prevention measures implemented at municipal facilities must be visually inspected [*insert frequency, e.g., monthly or quarterly*] to ensure they are working properly; a log of inspections must be maintained and made available for review by the permitting authority upon request.

6.4.3 Street Sweeping and Cleaning

- a. The permittee must continue to evaluate and rate all municipally-owned streets, roads, and public parking lots within their jurisdiction. The permittee must include in the evaluation the sweeping frequency, timing, and efficiency of existing street sweeping programs. The street sweeping frequency must be based on land use, trash and stormwater pollutant levels generated. At a minimum, the following areas must be regarded as “high priority,” for sweeping activities while the “medium priority” and “low priority” areas are recommended:

- High priority – Streets, road segments, and public parking lots designated as high priority include, but are not limited to, high traffic zones, commercial and industrial districts, shopping malls, large schools, high-density residential dwellings, sport and event venues, and plazas. This designation must include areas that consistently accumulate high volumes of trash, debris, and other stormwater pollutants.
- Medium priority – Streets, road segments and public parking lots designated as medium priority include, but are not limited to, medium traffic zones; warehouse districts; and light, small-scale commercial and industrial areas.
- Low priority – Streets and road segments designated as low priority include, but are not limited to, light traffic zones and residential zones.

- b. The permittee must show on a map of its service area how the streets, roads, and public parking lots have been rated in accordance with Part 6.4.3.a.

- c. Implementing sweeping schedules – The permittee must sweep streets/roads/public parking lots in accordance with the following frequency:

- High priority – average of at least [*insert frequency, e.g., twice per month*]
- Medium priority – average of at least [*insert frequency, e.g., once per month*]
- Low priority – [*insert frequency, e.g., twice per year*]

If a permittee’s existing overall street sweeping effort provides equivalent or greater street sweeping frequency relative to the requirements above, the permittee may continue to implement its existing street sweeping program.

- d. For areas where street sweeping is technically infeasible (e.g., streets without curbs), the permittee must increase implementation of other trash/litter control procedures to minimize pollutant discharges to storm drains and creeks. The permittee must show on its Part 6.4.3.b map the location of these areas.
- e. Sweeping equipment selection and operation
1. When replacing existing sweeping equipment, the permittee must select and operate high-performing sweepers that are efficient in removing pollutants,

including fine particulates, from impervious surfaces.

2. The permittee must follow equipment design performance specifications to ensure that street sweeping equipment is operated at the proper equipment design speed with appropriate verification, and that it is properly maintained.
 3. The permittee must operate sweepers to optimize pollutant removal by permitting sweepers access to the curb through the use of parking restrictions that clear the curb or through effective public outreach to inform citizens of sweeping days and times so that voluntary curb clearing can occur.
- f. Sweeper Waste Material Disposal – The permittee must develop a procedure to dewater and dispose of street sweeper waste material. This procedure must ensure that water and material will not reenter the MS4.
- g. Operator training – Street sweeper operators must be trained to enhance operations for water quality benefit.
- h. The permittee must include the following in the SWMP and update as changes are made:
1. A description of the street sweeping frequency and any significant changes in the sweeping frequency map, along with the basis for those changes
 2. The types of sweepers used
 3. A summary of the proper sweeping operation verification results and street sweeping methods, including the way in which the permittee specifies and confirms the rate or speed at which street miles are covered by sweeper operators
 4. The use of additional resources in sweeping seasonal leaves or pick-up of other material
 5. A description of the methods for addressing areas identified in Part 6.4.3, considered infeasible for street sweeping
- 6.4.4 Maintenance of municipally-owned and/or maintained structural stormwater controls
- a. The permittee must inspect at least [*insert frequency, e.g., yearly*], and maintain if necessary, all municipally-owned or maintained structural stormwater controls. The permittee must also maintain all green infrastructure practices through regularly scheduled maintenance activities.

Example Permit Requirement Rationale for the Fact Sheet

MS4 Maintenance

Traditional municipal storm drain systems were designed to quickly collect and convey runoff to receiving waters. The purpose of catch basin, inlet, and storm drain cleanouts is to prevent blockages, flooding, and reduce pollution.

Fine particles and pollutants from run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding can accumulate along the curbs of roads in between rainfall events. This results in the accumulation of pollutants such as sediment, nutrients, metals, hydrocarbons, bacteria, pesticides, trash and other toxic chemicals. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the storm drain system. Because they effectively trap solids, they need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows. By doing so the MS4 will prevent trash and litter from ultimately becoming sources of marine debris, which is any man-made, solid material that enters waterways either directly or indirectly.

The permit includes a priority ranking approach for catch basins so that municipal resources are directed to the areas and structures that generate the most pollutants. A priority ranking system is required because some catch basins will accumulate pollutants faster than others based on the nature of the drainage area and whether controls are present upstream of the catch basin. Catch basins with the highest accumulations will need to be cleaned more often than those with low accumulations. The permit language also includes a requirement that triggers catch basin cleaning when a catch basin is one-third full.

Proper storm drain system cleanout includes vacuuming or manually removing debris from catch basins; vacuuming or flushing pipes to increase capacity and remove clogs; removing sediment, debris, and overgrown vegetation from open channels; and repairing structures to ensure the integrity of the drainage system. It is important to conduct regular inspections of all storm sewer infrastructure and perform maintenance as necessary. Though these activities are intended to ensure that the sewer system is properly maintained and that any accumulated pollutants are removed prior to discharge, if not properly executed, cleanout activities can result in pollutant discharges. In selecting maintenance practices, the permittee must carefully evaluate each with an eye towards stormwater pollution potential to minimize unintended pollutant discharges, such as the use of flushing storm drain pipes to remove debris without recapturing the debris further down the pipe.

The materials removed from catch basins may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Street Sweeping and Cleaning

Street and parking lot sweeping is a practice that most municipalities initially conducted for aesthetic purposes. However, the water quality benefits are now widely recognized. Street sweeping also prevents particulate matter associated with road dust from accumulating on public streets and washing into storm drains.

The permit language addresses a number of important factors that impact the effectiveness of a street sweeping program. The first factor is the type of equipment used; the permit language stipulates that when equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up

large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained sediment particles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e., two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated; the permit specifies that equipment be operated according to the manufacturers' operating instructions by operators who have been trained to sweep in accordance with the Permit Requirements in order to protect water quality.

The third determining factor is the degree to which parked cars block sweeper access to the curb; one of the best ways to ensure access to the curb is to establish parking restrictions based on sweeping schedules and to inform residents of the schedule so they can voluntarily move their cars. The permit requires that the permittee institute parking restrictions and/or a public outreach campaign requesting that cars be parked elsewhere to accommodate sweeping schedules.

Because not all streets are suitable for sweeping (e.g., those that don't have a curb and gutter), source controls can be used in place of sweeping in those areas.

The permittee is required to maintain documentation of sweeping events and characterize the quantity and composition of pollutants removed from roadways. Street sweeping data are relatively easy to track and maintain, so the permit includes requirements for reporting and assessment of the effectiveness of the sweeping activities based on equipment used, miles swept, and the amount of materials collected.

The street sweeping material may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Recommendations for the Permit Writer

MS4 Maintenance

MS4s should have a specific schedule to clean out their storm drains since it will ensure that the debris that is trapped in the system will not move into waterbodies and ultimately become marine debris in the ocean. For additional information to include on marine debris go to the EPA's Marine Debris website (www.epa.gov/owow/oceans/debris).

The frequency and timing of visual assessments and cleaning of storm drains and open channels can be tailored to local climate conditions. For example, one approach would be to require that visual observations and cleanings be conducted before the start of the wet season or before spring snowmelt.

The permitting authority should review and approve dewatering and disposal methods for materials removed from catch basins.

Catch basin labeling is believed to be an effective mechanism for educating residents since it involves a direct reminder that that water or other materials which flow into storm drains is not

treated in any way, but instead drains directly to nearby waterways. There are many methods for labeling catch basins and the permit writer should work with the permittee to determine the most feasible and cost effective method of delivering the “drains to stream” message.

Street Sweeping and Cleaning

Street sweeping frequency and timing can be based on climate conditions and seasonal variation in pollution loading. For example, in cold climates where sand is used for winter road maintenance, the permit language could specify increased sweeping during the winter and prior to the spring snowmelt. In areas with a rainy season, sweeping might be timed to occur before the rainy season starts.

In the fall, sweepers can be used to pick up leaves, as they can contribute 25 percent of nutrient loadings in catch basins. If more substantial piles of leaves are found in the community during the fall, street sweeping activities should be coordinated with leaf pick-up. Equally important is an early spring sweeping before rains begin to pick up sand, de-icing material, and winter debris. More frequent sweeping may reduce the need for catch basin cleaning.

The prioritization of sweeping activities (high, medium, low) should be based on standard categories that are based on traffic frequencies and used to determine service levels for the roadways. The example provided in the permit language is based on specific information for the location.

The permitting authority should review and approve dewatering and disposal methods for street sweeping material.

6.5 Flood Management

Example Permit Provision

6.5.1 Flood Management Projects – Within [*insert deadline, such as two years*] of permit issuance, the permittee must develop and implement a process to assess the water quality impacts in the design of all new flood management projects that are associated with the permittee or that discharge to the MS4. This process must include consideration of controls that can be used to minimize the impacts to site water quality and hydrology while still meeting the project objectives. Beginning [*insert deadline, such as three years*] from date of permit issuance, the permittee must assess at least [*insert number of projects to be evaluated, such as two*] existing flood management projects per year to determine whether changes or additions should be made to improve water quality.²⁴ A description of this process must be included in the SWMP document.

²⁴ Eastern Washington Phase II MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

This permit requires that existing flood management projects be prioritized and a set number be evaluated to identify opportunities for water quality retrofits. This is because the focus of stormwater management in the past had been to control flooding and mitigate property damage, with less emphasis on water quality protection. These structures may handle a significant amount of stormwater and therefore offer an opportunity to modify their design to include water quality features for less than the cost of building new controls. This requirement applies not only to new flood control projects, but also to existing structures.

6.6 Pesticide, Herbicide, and Fertilizer Application and Management

Example Permit Provision

6.6.1 Landscape maintenance

- a. The permittee must evaluate the materials used and activities performed on public spaces such as parks, schools, golf courses, easements, public rights of way, and other open spaces for pollution prevention opportunities. Maintenance activities for the turf landscaped portions of these can include mowing, fertilization, pesticide application, irrigation, etc. Typical pollutants include sediment, nutrients, hydrocarbons, pesticides, herbicides and organic debris.
- b. The permittee must implement the following practices to minimize landscaping-related pollutant generation:
 1. Educational activities, permits, certifications, and other measures for municipal applicators and distributors.
 2. Integrated pest management measures that rely on non-chemical solutions, including
 - Use of native plants, xeriscaping in arid/semi-arid regions (reduces water usage and fertilization)
 - Keeping clippings and leaves away from waterways and out of the street using mulching, composting, or landfilling
 - Limiting application of pesticides and fertilizers if precipitation is forecasted within 24 hours or as specified in label instructions
 - Limiting or replacing pesticide use (e.g., manual weed and insect removal)
 - Limiting or eliminating the use of fertilizers, or, if necessary, prohibiting application within 5 feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a waterbody
 - Reducing mowing of grass to allow for greater pollutant removal, but not jeopardizing motorist safety
 3. Schedules for chemical application that minimize the discharge of such constituents due to irrigation and expected precipitation.

4. The collection and proper disposal of unused pesticides, herbicides, and fertilizers.²⁵

Example Permit Requirement Rationale for the Fact Sheet

The permit focuses on requiring source controls to reduce the amount of chemicals used. The permit specifies the use of integrated pest management, selection of native vegetation that is naturally adapted to local conditions and therefore requires fewer chemical and water inputs, reducing exposure of the chemicals to water by scheduling application according to weather forecasts and plant needs, and ensuring that municipal employees who are responsible for storing and handling these materials are educated about their use, disposal, and possible impacts.

Recommendations for the Permit Writer

EPA is currently developing a general permit to control discharges from the application of pesticides to or over, including near, waters of the U.S. EPA is working closely with state NPDES and pesticide control authorities, the regulated community, and environmental organizations to develop its permit that will be required for such discharges beginning in April 2011. It is important to note that some of the permit language in this section may need to be altered to be consistent with the pesticide permit once it is finalized. For up-to-date information, go to EPA's website (www.epa.gov/npdes/agriculture).

6.7 Training and Education

Example Permit Provision

6.7.1 Employee Training Requirements – Permittees must develop an annual employee training program for appropriate employees involved in implementing pollution prevention and good housekeeping practices in the preceding Parts. All new hires must receive training within the first year of their hire date. This annual training must include a general stormwater education component, any new technologies, operations, or responsibilities that arise during the year, and the Permit Requirements that apply to the staff being trained. A description of the program must be maintained for review by the permitting authority. The permittee must also identify and track all personnel requiring training and records must be maintained. Training must begin [*insert deadline*] from the effective date of permit authorization.

²⁵ San Diego Phase I MS4 Permit (CAS0108758) (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/oc_permit/updates_8_13_09/R9-2009-0002_12Aug09.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The regulations found at 40 CFR 122.34(b)(6) specifically requires that the permittee develop a “training component” that trains employees “to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.” This permit requires employee training for existing and new employees who are involved in performing pollution prevention and good housekeeping practices. All training must include a general stormwater educational component, including an overview of the requirements with which the municipality needs to comply. The permittee is responsible for identifying which staff must attend trainings based on the applicability of the topics listed, and they are required to conduct refresher training on an annual basis.

Recommendations for the Permit Writer

The topics included in the trainings should take into consideration the types of activities in which the municipality engages and the extent to which such activities are performed in-house or contracted.

6.8 Contractor Requirements and Oversight

Example Permit Provision

6.8.1 Requirements for Contractors:

- a. Any contractors hired by the permittee to perform municipal maintenance activities must be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management SOPs described above.
- b. The permittee must provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs. Oversight procedures must be described in the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Many municipalities use third-party contractors to conduct municipal maintenance activities in lieu of using municipal employees. Contractors performing activities that can affect stormwater quality must be held to the same standards as the permittee. Not only must these expectations be defined in contracts between the permittee and its contractors, but the permittee is responsible for ensuring, through contractually-required documentation or periodic site visits, that contractors are using stormwater controls and following standard operating procedures.

CHAPTER 7: INDUSTRIAL STORMWATER SOURCES

Introduction

Phase I MS4 permittees are required to develop and implement an inspection and oversight program to monitor and control pollutants in stormwater discharges to the MS4 from industrial facilities.

Regulations addressing industrial stormwater management in Phase I MS4 permits is found at 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv). Requirements to regulate the stormwater discharges from commercial facilities are found at 40 CFR 122.26(d)(2)(iv)(A).

This program component typically applies only to Phase I MS4 permittees as Phase II federal regulations (40 CFR 122.34(b)) do not specifically address stormwater discharges from industrial facilities and commercial businesses (other than as part of the education and outreach program). However, EPA recommends that permit writers consider including requirements pertaining to stormwater discharges to the MS4 from industrial sources in Phase II permits to further reduce stormwater pollutants from the MS4.

Phase I MS4 regulations specify that several key elements be included in Phase I MS4 stormwater management programs. These elements include: adequate legal authority to require compliance and inspect sites, inspection of priority industrial and commercial facilities, establishing control measure requirements for facilities that may pose a threat to water quality, and enforcing stormwater requirements. In order to implement these requirements, MS4 permits require the development of an inventory of facilities and prioritization protocol and adequate staff training to ensure proper inspection and enforcement of requirements.

Included Concepts

- ▶ Facility inventory
- ▶ Industrial facility stormwater control measures
- ▶ Industrial and commercial facility inspections
- ▶ Staff training

7.1 Facility Inventory

Example Permit Provision

7.1.1 Source Identification

- a. The permittee must continue to maintain an inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could discharge pollutants in stormwater to the MS4. The inventory must be updated [*insert frequency, e.g. annually*] and available for review by the permitting authority upon request.
- b. The inventory must include the following minimum information for each industrial and commercial site/source:
 1. Name

2. Address
3. Physical location of storm drain receiving discharge
4. Name of receiving water
5. Pollutants potentially generated by the site/source
6. Identification of whether the site/source is (1) tributary to an impaired water body segment (i.e., whether it is listed under Section 303(d) of the Clean Water Act) and (2) whether it generates pollutants for which the water body segment is impaired
7. A narrative description including standard industrial classification (SIC) codes, which best reflects the principal products or services provided by each facility.

The use of a geolocational database system is highly recommended.

- c. At a minimum, the following sites/sources must be included in the inventory:

1. Commercial Sites/Sources:

[insert commercial sources that are a priority such as

- Airplane repair, maintenance, fueling, or cleaning
- Animal facilities
- Automobile and other vehicle body repair or painting
- Automobile (or other vehicle) parking lots and storage facilities
- Automobile repair, maintenance, fueling, or cleaning
- Boat repair, maintenance, fueling, or cleaning
- Building material retailers and storage
- Cement mixing or cutting
- Eating or drinking establishments (e.g., restaurants), including food markets
- Equipment repair, maintenance, fueling, or cleaning
- Golf courses, parks and other recreational areas/facilities
- Landscaping
- Marinas
- Masonry
- Mobile automobile or other vehicle washing
- Mobile carpet, drape or furniture cleaning
- Nurseries and greenhouses
- Painting and coating
- Pest control services
- Pool and fountain cleaning
- Portable sanitary services

- Power washing services
 - Retail or wholesale fueling]
2. Industrial Sites/Sources:
 - Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the Multi Sector General Permit or individual NPDES permit
 - Facilities subject to Title III of the Superfund Amendments and Reauthorization Act (SARA)
 - Hazardous waste treatment, disposal, storage and recovery facilities
 3. All other commercial or industrial sites/sources tributary to an impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired
 4. All other commercial or industrial sites/sources that the permittee determines may contribute a significant pollutant load to the MS4²⁶

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to develop an inventory of all potential commercial and industrial sites/sources that could contribute pollutants to the MS4. A list of specific commercial and industrial sites/sources is included in the permit, and additional sites/sources can be added if they are likely to discharge a pollutant of concern to an impaired waterbody or they are contributing a significant pollutant load to the MS4.

The inventory information will provide the permittee with information on potential pollutant sources that contribute to its MS4 system, and at what locations in the system into which they discharge. This information will also allow the permittee to prioritize inspections and tailor education and outreach efforts, which will best assist the facility in implementing appropriate pollution prevention practices or other on-site stormwater controls. In addition, the inventory data will allow the permittee to determine whether the facilities may discharge pollutants of concern into impaired waters. Finally, the information contained in the inventory will enable permittees to characterize these facilities and prioritize them based on their potential impact on stormwater quality. By prioritizing facilities in such a manner, the permittee may then establish a targeted approach towards conducting inspections (see Part 7.3 for a discussion of inspection frequency).

In addition, data from NPDES pretreatment programs within the MS4 boundary on significant industrial users (SIUs) could also be used to identify and prioritize the industrial sites in the stormwater program.

²⁶San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications.

Recommendations for the Permit Writer

The example permit provision lists specific commercial and industrial sources to be included in the inventory, but permit writers should customize this list to meet specific issues in their area. For example, some permittees may have large industrial areas with few commercial businesses, while others may have a large number of restaurants and retail businesses but no industrial facilities at all. Other permittees may have had past water quality problems at certain types of commercial or industrial sites, in which case such facilities should be included in their inventories.

7.2 Industrial Facility Stormwater Control Measures

Example Permit Provision

- 7.2.1 The permittee must require industrial and commercial facilities included in the Part 7.1 inventory to select, install, implement, and maintain stormwater control measures. At a minimum, these control measures must:
- a. Minimize Exposure – Industrial/commercial facilities must minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings (although significant enlargement of impervious surface area is not recommended). The facilities must consider, where appropriate:
 1. Using grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas
 2. Locating materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas)
 3. Cleaning up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants
 4. Using drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible
 5. Using spill/overflow protection equipment
 6. Draining fluids from equipment and vehicles prior to on-site storage or disposal
 7. Performing all cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray
 8. Ensuring that all wash water drains to a proper collection system (i.e., not the stormwater drainage system)
 - b. Follow Good Housekeeping Practices – Industrial/commercial facilities must keep clean all exposed areas that are potential sources of pollutants, using such

- measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers.
- c. Conduct Maintenance – Industrial/commercial facilities must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
 - d. Implement Spill Prevention and Response Procedures – Industrial/commercial facilities must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the facilities must implement:
 1. Procedures for plainly labeling containers (e.g., “Used Oil,” “Spent Solvents,” “Fertilizers and Pesticides,”) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur
 2. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling
 3. Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available.
 4. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies [*Insert appropriate contacts for reporting*]
 - e. Implement Erosion and Sediment Controls – Industrial/commercial facilities must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.
 - f. Manage Runoff – Industrial/commercial facilities must divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff, to minimize pollutants in discharges.
 - g. Address Salt Storage Piles or Piles Containing Salt – Industrial/commercial facilities must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal tarping must be used as an interim control until the permanent structure is completed. Facilities must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another NPDES permit.
 - h. Conduct Employee Training – All facility employees who work in areas where industrial materials or activities are exposed to stormwater, or who are

responsible for implementing activities necessary to manage stormwater must be trained. Training must be conducted [*insert frequency, e.g. at least annually*].

- i. Address Non-Stormwater Discharges – Industrial/commercial facilities must eliminate non-stormwater discharges not authorized by an applicable NPDES permit.
- j. Control Waste, Garbage and Floatable Debris – Facilities must ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.
- k. Control Dust Generation and Vehicle Tracking of Industrial Materials – Industrial/commercial facilities must minimize generation of dust and off-site tracking of raw, final, or waste materials.²⁷

7.2.2 Within the [*insert deadline, e.g. first two years of permit term*], the permittee must notify the owner/operator of each industrial and commercial site/source of the stormwater requirements for control measures in Part 7.2.1.

7.2.3 As necessary to minimize any pollutants causing the applicable receiving waterbody to be listed as impaired, the permittee must require implementation of additional controls for industrial and commercial sites/sources that are tributary to the impaired water body segments and that are likely to generate such impairment pollutants.²⁸

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to ensure that the minimum control measures are implemented, as applicable, at every industrial/commercial facility included in its inventory. The minimum measures outlined, when properly selected, designed and implemented, promote prevention and source control, before treatment.

The control measures in this permit are consistent with the control measure requirements found in EPA's 2008 Multi-Sector General Permit (MSGP) for stormwater discharges from industrial activities. The permit writer should ensure that these requirements are consistent with the State's industrial stormwater permit. The control measures in this permit describe specific activities that the permittee must require industrial facilities and commercial sites to implement to minimize stormwater pollution. Another control measure is simply preventing pollutants from coming into contact with precipitation in the first place since this will ensure they are not carried into nearby waterways. General good housekeeping and maintenance procedures are also required. Additional control measures address spill prevention and response, erosion and sediment controls, managing runoff, and controlling discharges from salt storage piles.

²⁷ 2008 MSGP (Section 2) (www.epa.gov/npdes/pubs/msgp2008_finalpermit.pdf), with modifications

²⁸ San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications

The control measures must also include employee training, controlling non-stormwater discharges, addressing waste, garbage and floatable debris, and addressing dust generation and vehicle tracking.²⁹

The permittee is required to notify industrial and commercial sites of the control measure requirements and their responsibility to implement and comply with the requirements.

Facilities that discharge into impaired waterbodies may be required to implement additional controls as necessary to prevent the discharge of the associated pollutants of concern.

7.3 Industrial and Commercial Facility Inspections

Example Permit Provision

7.3.1 Industrial and Commercial Site Inspection Program

- a. The permittee must continue to implement a program to inspect all commercial and industrial facilities included in its Part 7.1(a) inventory. The permittee must describe how this will occur in the SWMP.
- b. The inspection program must:
 1. Prioritize all facilities into high, medium, and low categories on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a water body, and violation history of the facility. The different priority categories will be assigned different inspection frequencies, with the highest priority facilities receiving more frequent inspections. Describe the process for prioritizing inspections and frequency of inspections. If any geographical areas are to be targeted for inspections due to high potential for stormwater pollution, these areas must be listed in the Inspection Plan.
 3. Explain how the priority assigned to any one facility may be modified based on the site inspection findings and the facility's potential to discharge pollutants.

7.3.2 Minimum Inspection Requirements

- a. Inspection Frequency – The permittee is required to conduct inspections at the following frequencies, at a minimum:
 1. Facilities with high potential for water quality impact must be inspected [*insert frequency, e.g. annually*].
 2. Facilities with medium potential for water quality impact must be inspected at least [*insert frequency, e.g. once every three years*].
 3. Facilities with low potential for water quality impact must be inspected at least [*insert frequency, e.g. once every 5 years*].

²⁹ 2008 MSGP Fact Sheet (www.epa.gov/npdes/pubs/msgp2008_finalfs.pdf), with modifications

4. Facilities with either a [*insert violation type*] written violation occurring in the previous year must be inspected at least [*insert frequency, e.g. annually*] until compliance is achieved.
 5. For facilities with no exposure of commercial or industrial activities to stormwater, no inspections are required. However, the permittee must continue to track these facilities for significant change in the exposure of their operations to stormwater.
- b. Scope of Inspection – Inspections must at a minimum:
1. Evaluate the facility’s compliance with the Part 7.2 requirement to select, design, install, and implement stormwater control measures.
 2. Conduct a visual observation for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater.
 3. Verify whether the facility is required to be authorized under the [*insert applicable NPDES general industrial stormwater permit*], and whether the facility has in fact obtained such permit coverage.³⁰
 4. Evaluate the facility’s compliance with any other relevant local stormwater requirements.
- c. Documentation Requirements – At a minimum, the permittee must document the following for each inspection:
- The inspection date and time;
- The name(s) and signature(s) of the inspector(s);
1. Weather information and a description of any discharges occurring at the time of the inspection;
 2. Any previously unidentified discharges of pollutants from the site;
 3. Any control measures needing maintenance or repairs;
 4. Any failed control measures that need replacement;
 5. Any incidents of noncompliance observed; and
 6. Any additional control measures needed to comply with the Permit Requirements.
- d. Track Inspections – Inspection findings must be tracked to ensure inspections are conducted at the frequency specified in Part 7.3.2.b., highlight and document the recidivism of noncompliant facilities, and aid follow up and enforcement activities.

7.3.3 Enforcement – The permittee must ensure that all necessary follow up and enforcement activities are conducted as necessary to require necessary implementation and maintenance of the control measures described in Part 7.2. The permittee is required to utilize the approved ERP for all enforcement actions.

³⁰ San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

Example Permit Requirement Rationale for the Fact Sheet

The permittee must design an inspection program that facilitates more frequent inspections of the highest priority facilities. (See 40 CFR 122.26(d)(iv)(C)(1)). This will help maximize use of the permittee's existing inspection resources and ensure that the permittee inspectors are the most visible and the most familiar with the facilities with the highest potential for water quality impact.

The permittee must develop a process for prioritizing inspections and designating all facilities in the industrial and commercial inventory as either a high, medium or low priority. The designation could occur by individual facility or by facility type. The prioritization for individual facilities may be adjusted after the first, or any subsequent, inspection (for example, if a facility is a high priority facility and the inspection reveals it has little potential for stormwater pollution, then the facility could be reprioritized as a low priority facility).

It is important that inspections be conducted in a thorough and consistent manner in accordance with a formal protocol for conducting an inspection. This protocol should be the basis for inspector training as well. Inspections should include a thorough walk-through of the facility.

The documentation of inspections is very important, not only when tracking noncompliance, but also to facilitate effective enforcement action when needed. A timeline of noncompliance and subsequent enforcement action is critical when escalating measures to gain compliance. Typically, the use of inspection forms facilitates complete and consistent documentation among inspectors and over time.

Recommendations for the Permit Writer

The permit writer may choose to define what criteria the permittee will use to determine the priority of each facility on its inventory. For example, the Phase I Los Angeles County MS4 permit specifies which facilities are Tier 1 and Tier 2 and provides the required inspection frequency for each. The permit writer could also automatically designate certain sets of industries to a certain priority category (e.g., all facilities subject to the State's Industrial General Permit could be designated as high priority facilities in the permit). If the permit does not define what criteria are to be used when prioritizing facilities, the permittee should be required to develop this protocol and submit it to the permitting authority for review.

The permit writer should review available industrial and commercial inventories to determine if more specific inspection frequencies should be set. For example, an MS4 with only 10 facilities in the inventory could probably inspect those facilities annually. However, an MS4 with over 2,000 facilities in the inventory may need to set the inspection frequency at a less frequent interval.

7.4 Staff Training

Example Permit Provision

7.4.1 The permittee must ensure that all staff whose primary job duties are implementing the industrial stormwater program is trained to conduct facility inspections. The training must cover what is required under this permit in terms of stormwater control measures, the requirements of other applicable Industrial Stormwater general permits or other related local requirements, the permittee's site inspection and documentation protocols, and enforcement procedures. Follow-up training must be provided every other year to address changes in procedures, techniques, or staffing. Permittees must document and maintain records of the training provided and the staff trained.³¹

Example Permit Requirement Rationale for the Fact Sheet

Inspectors responsible for conducting inspections at industrial/commercial facilities must be trained on the applicable stormwater requirements for the different types of facilities (i.e., industrial, commercial, other). Training must include a summary of federal, state, and local stormwater regulations that may apply to industrial/commercial facilities. Inspectors must be familiar with various types of stormwater control measures commonly used at the types of facilities typically found in the MS4 area and must be able to educate facility operators about such stormwater control measures. In addition, inspectors must understand and use the permittee's established enforcement response plan (see Chapter 1 of this Guide) to gain compliance as necessary. The inspection staff must be proficient in the enforcement escalation procedure and must properly document all enforcement actions accordingly per the ERP.

³¹ Western Washington Phase I MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf), with modifications

CHAPTER 8: MONITORING, EVALUATION, AND REPORTING

Introduction

Phase I MS4s are required to conduct discharge characterization, field screening and develop a monitoring program. Phase I MS4s are also required to conduct an assessment of controls. See 40 CFR 122.26(d)(1)(iii), (d)(2)(iii), and (d)(2)(v).

Phase II MS4 regulations allow, but do not specifically require, monitoring. Phase II MS4s are required to evaluate program compliance, the appropriateness of identified control measures, and progress toward achieving identified measurable goals. See 40 CFR 122.34(g).

There are many components involved in monitoring and evaluating the effectiveness of a municipal stormwater program. Any comprehensive monitoring program should have clear monitoring objectives to help determine compliance and water quality impacts. Each monitoring program is unique and should be customized to the specific waterbodies, impairments, and pollutant sources of the MS4.

Evaluating the overall effectiveness of the municipal stormwater program should be done using information from the monitoring program, progress toward meeting measurable goals, and other indicators. Without assessing the effectiveness of the stormwater management program the permittee will not know which parts of the program need to be modified to protect and/or improve water quality and instead will essentially be operating blindly. Establishing a comprehensive monitoring and assessment program will enable the permittee to track progress in complying with permit provisions and implementing a program to protect water quality.

Included Concepts

- ▶ Consolidated information tracking system
- ▶ Development of a comprehensive monitoring and assessment program
- ▶ Evaluation of overall program effectiveness
- ▶ Requirements for annual reporting of MS4 activities

8.1 Consolidated Information Tracking System

Example Permit Provision

- 8.1.1 Within the first *[insert time frame which corresponds to the development of the monitoring program e.g. first two years of permit]*, the permittee must develop a tracking system to track the information required in the permit as well as the information required to be reported in the annual report (see Part 8.4).

Example Permit Requirement Rationale for the Fact Sheet

An important part of any municipal stormwater program is to document and track information on activities the permittee undertakes to comply with the Permit Requirements. Tracking should be integrated into each of the minimum measures. For example, tracking the location of illicit discharges may indicate that a specific area has a high incidence of motor oil being dumped into storm drains. Investigations may reveal that homeowners are changing the motor oil in their cars, but not properly disposing it. Therefore, the permittee will need to educate the homeowners in that area regarding proper disposal.

The permittee must develop a tracking system to monitor implementation of its various programs in order to document the permittee's compliance with its Permit Requirements, such as the number of construction sites and industrial facilities inspected. In addition, the tracking system will allow the permittee to monitor the compliance status of those entities within its jurisdiction, such as construction sites and industrial facilities, and to ensure compliance of municipally-owned and operated facilities.

Any tracking system should be coordinated with the monitoring and evaluation programs developed by the permittee. Ideally, a monitoring and evaluation program will link the "actions" (e.g., the inspections, maintenance, education and other activities the permittee implements) with the "results" (e.g., water quality monitoring data, improvements in environmental indicators) of the monitoring program.

In addition, adequate tracking is necessary to generate and provide reports of program progress not only to the permitting authority, but to a permittee's internal management for planning and funding purposes. Ideally, a MS4 permittee will have at least one person in charge of overall coordination, including tracking. While many departments or agencies might implement various stormwater program components, it is helpful for a single person or department to gather and analyze applicable data. This can be accomplished in a number of ways and will vary based on existing data tracking mechanisms used by a permittee, the data being captured and the reporting requirements the permittee must comply with. Ideally, the program would have a database accessible by all parties which specifies the required data. Lacking this, the permittee will need to coordinate all responsible parties. The permittee will need to ensure that responsible parties "mine" all data necessary to adequately represent the program and permit compliance, and specify adequate internal reporting deadlines to guarantee that the data is available in a timely manner for program planning, effectiveness assessments and permit reporting. Some permittees create reporting forms for program component managers to complete and submit by internal deadlines. Regardless of how the permittee coordinates the effort internally, without adequate tracking of data the permittees will not be able to submit annual reports to the permitting authority that provide the necessary information to determine permit compliance.

Recommendations for the Permit Writer

To assist the permittee in ensuring appropriate data is gathered and analyzed, the permitting authority should be very clear regarding annual reporting requirements. In addition, the text for this section should be tailored depending on the permittee. For example, some permittees may be able to develop a GIS-based system complete with the option to upload pictures and inspection reports versus a spreadsheet. In the text provided either system would meet the requirements, but more detailed information can be obtained with the GIS-based system.

8.2 Development of a Comprehensive Monitoring & Assessment Program

Example Permit Provision

- 8.2.1 The permittee must continue to implement, and revise as necessary, a comprehensive monitoring and assessment program. A description of this program must be included in the SWMP document. The monitoring and assessment program must be designed to meet the following objectives:
- a. Assess compliance with this permit;
 - b. Measure the effectiveness of the permittee's stormwater management program;
 - c. Assess the chemical, physical, and biological impacts to receiving waters resulting from stormwater discharges;
 - d. Characterize stormwater discharges;
 - e. Identify sources of specific pollutants;
 - f. Detect and eliminate illicit discharges and illegal connections to the MS4; and
 - g. Assess the overall health and evaluate long-term trends in receiving water quality.

NOTE: Because monitoring programs and requirements are very specific to the MS4 and local water quality impairments, permit writers are directed to the "Recommendations to the Permit Writer" section below for examples of comprehensive monitoring program Permit Requirements.

Example Permit Requirement Rationale for the Fact Sheet

Without clear monitoring objectives and a detailed monitoring plan, it will be difficult for permittees and permitting authorities to evaluate the effectiveness of the municipal stormwater program.

There are numerous factors that should be examined while setting up the water quality monitoring portion of the comprehensive program. Understanding and considering climatic conditions such as precipitation patterns, temperature, and seasonal variations will ensure the study design will collect data that are representative of typical storms in the area and that sampling occurs during times of the year when it is most logical to do so. Acknowledging the different types of land uses within the area will also help the permittee to prioritize monitoring efforts based on the areas most likely to be impacted by stormwater. The type of waterbody monitored must also be considered when selecting sampling locations since pollutants behave differently depending on the environment thereby impacting sampling protocols. For example, sampling in a freshwater lake involves different protocols than monitoring in a tidally influenced river or a first order stream. Waterbody type can also influence the data results and conclusions (e.g. freshwater wetlands typically have high denitrification rates that will likely impact the results of nitrate sampling).

Selection of specific sampling locations is also very important. If particular sites are of concern, then monitoring both above and below the sites to figure out their contributions to the overall water quality issues may make sense. Also, the actual location in the waterbody is important to specify for consistency. For example, should samples be taken close to the stream bank or in the center of the waterbody, in riffles or pools? The answers to these questions, of course, depend on the goals of the monitoring and the constituents (biological, chemical, hydrological) being examined.

In addition, the number and frequency of samples collected and stream assessments performed will determine how robust the data will be (see page 287 in *National Research Council's Report Urban Stormwater Management in the United States (2009)* available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf). Monitoring may or may not be tied to specific wet weather events (i.e. within 72 hours after a rainfall event). A combination of specific wet weather samples and dry weather samples may be appropriate.

Establishing objectives with associated indicators (environmental or administrative) for each minimum measure can help put each component into perspective when considering the overall program. Indicators are one way to evaluate the success of the program from the overall program level. Developing standard environmental indicators is a critical step to evaluate the SWMP. Permittees need practical tools, such as these indicators, in order to determine if their stormwater programs are working, and that help elucidate where additional efforts may be most critical. Environmental indicators should be selected based on the type (estuarine/freshwater/brackish) and condition (impaired/non-impaired) of the waterbody to which stormwater is discharged as well as the intended use of the area where the stormwater is discharged (source water protection area, etc.).

In addition, permittees should document certain administrative efforts associated with developing and implementing their SWMPs. In this context 'administrative' is considered quite broad, including such things as control measures, inspection programs, policies and rules, MS4 system scope and condition, educational efforts and any other variable or outcome that could reflect on the quality of a stormwater program other than the actual environmental quality outcomes, which are covered under 'Environmental Indicators'.

Good administrative indicators are numerous, and good suites of indicators will vary from one community to another. More information can be obtained on each of the environmental and administrative indicators listed by going to the Stormwater Manager's Resource Center (www.stormwatercenter.net) and selecting "Monitor/Assess" on the left navigation bar.

Several protocols have been developed to assess the effectiveness of stormwater control measures:

- Guidance for Evaluating Emerging Stormwater Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE) www.ecy.wa.gov/biblio/0210037.html . This guidance document's primary purpose is to establish a testing protocol and process for evaluating and reporting on the performance and appropriate uses of emerging stormwater treatment technologies.
- Technology Acceptance Reciprocity Partnership (TARP) Protocol for Stormwater Best Management Practice Demonstrations www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp/pdffiles/Tier2protocol.pdf . The purpose of the TARP

Protocol is to provide a uniform method for demonstrating stormwater technologies and developing test quality assurance (QA) plans for certification or verification of performance claims.

- BMP Performance Verification Checklist. This is a tool that helps permittees provide a consistent set of questions for applicants proposing to use manufactured and proprietary BMP. It is available as Tool # 8 of the Center for Watershed Protection's *Managing Stormwater in Your Community*. The checklist is accompanied by an explanation and instructions for using the checklist, technical appendices, and a matrix that compares existing verification protocols, such as TARP and TAPE.

Additional monitoring resources include:

- CWP, 2008, *Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs* (www.cwp.org)
- Geosyntec Consultants and Wright Water Engineers, 2009, *Urban Stormwater BMP Performance Monitoring*, (bmpdatabase.org/MonitoringEval.htm)
- CASQA, 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance* (www.casqa.org)

Recommendations for the Permit Writer

Because of the site-specific nature and variability of these monitoring programs between permittees, the detailed requirements should be provided by each permit writer. For example, the Phase I regulations included specific monitoring requirements while the Phase II regulations allow, but do not specifically require monitoring. To assist permit writers, several examples of monitoring requirements from existing MS4 permits are listed below:

- Baltimore County, MD Phase I MS4 permit (issued 2005); see the watershed assessment and planning requirements (Part II.F) and assessment of controls (Part II.H) www.mde.state.md.us/assets/document/sedimentStormwater/MSSPermit/BA%20final%20permit.pdf
- Southern California Regional Bioassessment Monitoring Program (this is a regional monitoring program involving coastal counties in Southern California) www.socalsmc.org/Docs/SMC-DesignofBioassessmentRegionalMonitoringProgram.pdf
- San Diego, CA Phase I MS4 Permit (issued 2007); see Receiving Waters and Urban Runoff Monitoring and Reporting Program. www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf

The permit writer could consider the role of partnerships among the MS4s in establishing and implementing the monitoring programs so that any data collected is robust, useful, and meaningful. In addition, communities may benefit more by working with local organizations and/or neighboring communities who are already collecting similar data. By doing so resources may be used more efficiently and results of testing may be more robust.

The permit writer should also require the permittee to assess the effectiveness of the SWMP in meeting applicable Permit Requirements. The sampling protocols developed must support the goals of the monitoring program. The monitoring and assessment program must include water quality monitoring as well as an assessment of environmental and administrative indicators. Along these lines, the permit writer could also add requirements such as the ones provided below:

Water Quality Monitoring

a. The Permittee must develop a water quality monitoring program that includes [insert specific monitoring programs and requirements, such as:

- Ambient receiving water monitoring,
- Biological monitoring,
- Control measure performance monitoring, or
- Discharge (wet weather) monitoring

Because the detailed monitoring program requirements are very unique to each MS4, the permitting authority should insert here the specific details of the relevant monitoring program, such as monitoring type, frequency, location, etc.]

- b. When determining water quality monitoring components, the permittee must examine and consider a variety of factors, including, but not limited to:
- Climatic conditions, including precipitation patterns, temperature, and seasonal variations
 - Land uses in the MS4
 - Waterbody type
- c. The permittee must consider and address specific sampling quality assurance/quality control protocols, including, but not limited to:
- Specific chemical constituents (pollutants), biological stream indicators, and physical stream indicators that will be monitored to best achieve the purpose of the monitoring
 - Sampling locations
 - Number and frequency of sample collection and assessments
 - Timing of sample collection
- d. The permittee must determine if any similar monitoring is occurring within the MS4 and if it is logical to link efforts.

Environmental Indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] environmental

indicators from each category listed below (physical and hydrologic indicators; biological indicators; water quality indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Physical and hydrological indicators	Biological indicators	Water quality indicators
<ul style="list-style-type: none"> • Stream widening/downcutting • Physical habitat quality • Impacted dry weather flows • Increased flooding frequency • Stream temperature monitoring 	<ul style="list-style-type: none"> • Fish assemblage analysis • Macro-invertebrate assemblage • Single species indicator • Composite indicators • Other biological indicators 	<ul style="list-style-type: none"> • Water quality pollutant constituent monitoring • Toxicity testing • Non-point source loadings • Exceedance frequencies of water quality standards • Sediment contamination • Human health criteria

Administrative indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] administrative indicator from each category listed below (social indicators; programmatic indicators; site indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Social indicators	Programmatic indicators	Site indicators
<ul style="list-style-type: none"> • Public attitude surveys • Industrial/commercial pollution prevention • Public involvement and monitoring • User perception 	<ul style="list-style-type: none"> • Number of illicit connections identified and corrected • Number of control measures installed, inspected, and maintained • Permitting and compliance • Growth and development 	<ul style="list-style-type: none"> • Control measure performance monitoring • Industrial site compliance monitoring

Performance Monitoring of Stormwater Controls

When monitoring the performance of stormwater controls, EPA recommends that percent removal efficiencies are not calculated and compared since results can be misleading because the percentages may be based on differing levels of the influent concentration (see cfpub.epa.gov/npdes/stormwater/urbanbmp/bmptopic.cfm#percentremoval for further discussion; also see *National Research Council's Report Urban Stormwater Management in the United States (2009)* available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf).

Modeling can also be a useful tool to quantify the impacts of municipal stormwater management. The following resources provide summaries and reviews of different types of models available to

determine existing loading from an MS4 as well as the effects expected from various stormwater controls.

1. USEPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters
www.epa.gov/nps/watershed_handbook/

Chapter 8 of this document focuses on methods for estimating pollutant loads, including the use of watershed models. This chapter provides assistance in selecting and applying watershed models to estimate pollutant loads from existing conditions.

2. USEPA TMDL Model Evaluation and Research Needs
www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm

This report documents the review of more than 60 available watershed and receiving water models. It discusses model selection on the basis of model capabilities and provides a series of tables rating the capabilities or applicability the models using the categories of TMDL endpoints, general land and water features, special land processes, special water processes, and application considerations including the selection of appropriate best management practices and their water quality impacts. The document also provides individual fact sheets for each reviewed model.

8.3 Evaluation of Overall Program Effectiveness

Example Permit Provision

- 8.3.1 *Annual Effectiveness Assessment* – The annual effectiveness assessment must:
- a. Use the monitoring and assessment data described in Part 8.2 to specifically assess the effectiveness of each of the following:
 1. Each significant activity/control measures or type of activity/control measure implemented;
 2. Implementation of each major component of the Stormwater Management Program (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Good Housekeeping); and
 3. Implementation of the Stormwater Management Program as a whole.
 - b. Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 8.3.1.a above.
 - c. Document the permittee’s compliance with permit conditions.
- 8.3.2 Based on the results of the effectiveness assessment, the permittee must annually review its activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Municipal activities/control

measures that are ineffective or less effective than other comparable municipal activities/control measures must be replaced or improved upon by implementation of more effective municipal activities/control measures.

8.3.3 As part of its Annual Reports, the permittee must report on its SWMP effectiveness assessment as implemented under Part 8.3.1 above.

Example Permit Requirement Rationale for the Fact Sheet

A key requirement in the stormwater Phase II rule is a report (40 CFR 122.34(g)(3)) that includes “the status of compliance with permit conditions, an assessment of the appropriateness of identified [control measures] and progress towards achieving identified measurable goals for each of the minimum control measures.” This assessment is critical to the stormwater program framework which uses the iterative approach of implementing controls, conducting assessments, and designating refocused controls leading toward attainment of water quality standards.

Building on the monitoring and assessment program developed in Part 8.2, the permittee must conduct an annual effectiveness assessment to assess the effectiveness of significant control measures, SWMP components, and the SWMP as a whole. The California Stormwater Quality Association’s (CASQA) *Municipal Stormwater Program Effectiveness Guidance* describes strategies and methods for assessing effectiveness, including examples of effectiveness assessment for each SWMP program component. The CASQA Effectiveness Guidance is available at www.casqa.org for purchase. A two-hour EPA webcast focusing on the CASQA Guide is also available (available at www.epa.gov/npdes/training under “Assessing the Effectiveness of Your Municipal Stormwater Program”). A resources document from the webcast includes a 10 page summary of the Guide and example pages from the municipal chapter (www.epa.gov/npdes/outreach_files/webcast/jun0408/110961/municipal_resources.pdf).

The *Municipal Stormwater Program Effectiveness Assessment Guidance* synthesizes information on designing and conducting program effectiveness assessments. The document also explains how to select certain methods based on programmatic outcomes and goals. The reader is led through a series of questions and case studies to demonstrate how proper assessments are selected. Techniques are related to different level of outcomes: level one – documenting activities, level two – raising awareness, level 3 – changing behavior, level 4 – reducing loads from sources, level 5 – improving runoff quality, and level 6 – protecting receiving water quality. The Guide includes fact sheets for all six NPDES program elements, outlining methods and techniques for assessing effectiveness of each program.

Recommendations for the Permit Writer

Adaptive management is the appropriate process for assessing new opportunities for improving program effectiveness in controlling stormwater pollution. The permit writer should require the permittee to use adaptive management throughout the permit term to assess options for improving controls on stormwater discharges as compared with measurable goals and demonstrated by monitoring and assessment protocols. The permit writer should have the permittee monitor and

assess the data and analyses required under the permit as well as applicable information from other sources in the adaptive management process.

In addition, the permit writer should have the permittee assess and modify, as necessary, any or all existing SWMP components and adopt new or revised SWMP components to optimize reductions in stormwater pollutants through an iterative process. This iterative process should include routine assessment of the need to further improve water quality and protect beneficial uses, review of available technologies and practices to accomplish the needed improvement, and evaluate resources available to implement the technologies and practices.

8.4 Requirements for Annual Reporting of MS4 Activities

Example Permit Provision

- 8.4.1 Summary Annual Report - The Permittee must submit annual reports on or before *[specify deadline, e.g., the anniversary date of this permit]* for the reporting period *[specify the reporting period, e.g., July 1-June 30]*. The Permittee must use the Summary MS4 Annual Report template in Appendix A to document a summary of the past year activities. All of the information required on this form must be completed.
- 8.4.2 Detailed Annual Report - The Permittee must also submit a detailed annual report that addresses, for the activities described in the SWMP document required in Part 1.1, the following:
- A summary of past year activities, including where available, specific quantities achieved and summaries of enforcement actions. See Part 8.4.3 for required information specific to certain SWMP areas.
 - A description of the effectiveness of each SWMP program component or activity (see Part 8.3); and
 - Planned activities and changes for the next reporting period, for each SWMP program component or activity.
 - Detailed fiscal analysis described in Part 1.4.2.
- 8.4.3 *[Specify any additional information and/or data pertaining to implementation of priority activities the Permitting Authority would like to see in Annual Reports, e.g. a list of green roofs (with square footage) installed in the MS4, a summary of water quality monitoring data collected for a specific waterbody, etc.]*

The Annual Report must clearly refer to the Permit Requirements, and describe in quantifiable terms, the status of activities undertaken to comply with each requirement.

Example Permit Requirement Rationale for the Fact Sheet

In general, an annual report must document and summarize implementation of the SWMP during the previous year and evaluate program results and describe planned changes towards continuous improvement. The annual report also can serve as a “state of the SWMP” report for the general public or other stakeholders in the community. While records are to be kept and made available to the public, the annual report is an excellent summary document to provide as well.

Recommendations for the Permit Writer

EPA recommends using its Summary Annual Report Template (see Appendix A) in this guidance in order to obtain summary information about the status of MS4 programs. In addition to the summary annual report template, permittees must also submit a more detailed annual report.

The permit writer may determine that additional, more detailed, information is needed to determine compliance with the Permit Requirements. Even if these reporting details are not required within the permit, the permitting authority and enforcement officials can still request them at any time or during a program audit.

MS4 permits should require permittees to summarize and analyze data concerning the effectiveness of the SWMP and submit the analysis to the permitting authority. For example, the permittees should address such questions as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the MS4 need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations). How has the permittee responded to these trends? Over the last year, how many construction site plan reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

At a minimum, the permit should require that the annual report clearly illustrate three key items for each SWMP area:

- **Summary of the Year’s Activities.** The summary should describe and quantify program activities for each SWMP component. Responsible persons, agencies, departments or co-permittees should be included. Each activity should be described in relation to achievement of established goals or performance standards.

- **Description of SWMP Effectiveness.** An annual report should not only describe the previous year's activities, but should also highlight the SMWP's effectiveness (see Part 8.3) using the indicators required in Part 8.2.
- **Planned Activities and Changes.** The annual report should describe activities planned for the next year highlighting any changes made to improve control measures or program effectiveness.

Also, although the stormwater Phase II rule requires reports, after the first permit term, to be submitted in only years two and four of the permit term, EPA strongly encourages annual reports for all permittees.

APPENDIX A: SUMMARY ANNUAL REPORT TEMPLATE



National Pollutant Discharge Elimination System Stormwater Program

Small MS4 Report Form



The purpose of this report is to contribute information to an evaluation of the NPDES small municipal separate storm sewer system (MS4) permit program. Consistent with 40 CFR §122.37 the U.S. Environmental Protection Agency is assessing the status of the program nation-wide. A “no” answer to a question does not necessarily mean noncompliance with your permit or with the federal regulations. In order to establish the range of variability in the program it is necessary to ask questions along a fairly broad performance continuum. Your permitting authority may use some of this information as one component of a compliance evaluation.

1. MS4 Information

Name of MS4

Name of Contact Person (First) (Last) (Title)

Telephone (including area code) Email

Mailing Address

City State ZIP code

What size population does your MS4 serve? _____ NPDES number _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

- A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? Yes No
- B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No

- C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

- D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? Yes No
- E. Are you implementing additional specific provisions to ensure their continued integrity? Yes No

3. Public Education and Public Participation

- A. Is your public education program targeting specific pollutants and sources of those pollutants? Yes No
- B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

- C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

- D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? Yes No

4. Construction

- A. Do you have an ordinance or other regulatory mechanism stipulating:
 - Erosion and sediment control requirements? Yes No
 - Other construction waste control requirements? Yes No
 - Requirement to submit construction plans for review? Yes No
 - MS4 enforcement authority? Yes No
- B. Do you have written procedures for:
 - Reviewing construction plans? Yes No
 - Performing inspections? Yes No
 - Responding to violations? Yes No
- C. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. _____
- D. How many of the sites identified in 4.C did you inspect during this reporting period? _____
- E. Describe, on average, the frequency with which your program conducts construction site inspections.

- F. Do you prioritize certain construction sites for more frequent inspections? Yes No
If Yes, based on what criteria? _____
- G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

<input type="checkbox"/> Yes	Notice of violation	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Administrative fines	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Stop Work Orders	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Civil penalties	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Criminal actions	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Administrative orders	# _____	No Authority <input type="checkbox"/>
<input type="checkbox"/> Yes	Other _____	# _____	
- H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? Yes No
- I. What are the 3 most common types of violations documented during this reporting period?

- J. How often do municipal employees receive training on the construction program? _____

5. Illicit Discharge Elimination

- A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? Yes No
- B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? Yes No
- C. Identify the number of outfalls in your storm sewer system. _____
- D. Do you have documented procedures, including frequency, for screening outfalls? Yes No
- E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

- F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____
- G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

- H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? Yes No
- I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? Yes No
- J. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____
- K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

- L. How often do municipal employees receive training on the illicit discharge program? _____

6. Stormwater Management for Municipal Operations

- A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:
 - All public parks, ball fields, other recreational facilities and other open spaces Yes No
 - All municipal construction activities, including those disturbing less than 1 acre Yes No
 - All municipal turf grass/landscape management activities Yes No
 - All municipal vehicle fueling, operation and maintenance activities Yes No
 - All municipal maintenance yards Yes No
 - All municipal waste handling and disposal areas Yes No
 - Other _____
- B. Are stormwater inspections conducted at these facilities? Yes No
- C. If Yes, at what frequency are inspections conducted? _____
- D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

- E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? Yes No
- F. If Yes, which activities and/or facilities receive most frequent inspections? _____
- G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? Yes No
- H. If yes, do you also provide regular updates and refreshers? Yes No
- I. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Stormwater Measures

- A. Do you have an ordinance or other regulatory mechanism to require:
- | | | |
|--|------------------------------|-----------------------------|
| Site plan reviews for stormwater/water quality of all new and re-development projects? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Long-term operation and maintenance of stormwater management controls? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Retrofitting to incorporate long-term stormwater management controls? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- B. If you have retrofit requirements, what are the circumstances/criteria?

- C. What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.) _____
- D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? Yes No
- E. Do these performance or design standards require that pre-development hydrology be met for:
- | | | |
|----------------------|------------------------------|-----------------------------|
| Flow volumes | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Peak discharge rates | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Discharge frequency | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Flow duration | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

- G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____
- H. How many of the plans identified in 7.G were approved? _____
- I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? _____
- J. How many of the practices/facilities identified in I were found to have inadequate maintenance? _____
- K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections?

- L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? Yes No
- M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? _____
- N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No
- O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? Yes No
- P. How often do municipal employees receive training on the post-construction program? _____

8. Program Resources

- A. What was the annual expenditure to implement MS4 permit requirements this reporting period? _____
- B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? _____

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source: _____ Amount \$ _____ OR % _____

Source: _____ Amount \$ _____ OR % _____

Source: _____ Amount \$ _____ OR % _____

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? _____

E. Do you share program implementation responsibilities with any other entities? Yes No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

10. Additional Information

In the space below, please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

I certify that all information provided in this report is, to the best of my knowledge and belief, true, accurate and complete. Yes

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility:** by either a principal executive or ranking elected official.

Name of Certifying Official, Title

Date (mm/dd/yyyy)

Submit

APPENDIX B: DEFINITIONS

Commencement of Construction – the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material). (Source: 2008 CGP)

Control Measure – any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to waters of the United States. (Source: 2008 CGP)

Discharge – when used without qualification means the “discharge of a pollutant.” (Source: 2008 CGP)

Discharge of Stormwater Associated with Construction Activity – as used in this permit, refers to a discharge of pollutants in stormwater from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck chute washdown, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (Source: 2008 CGP)

Illicit Discharge - any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities. (Source: 40 CFR 122.26)

Large Construction Activity – is defined at 40 CFR §122.26(b)(14)(x) and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Non-Structural Controls – preventative actions that involve management and source controls. Refer also to 40 CFR 122.34(b)(5)(c)(iii). (Source: 40 CFR 122.26)

Qualified Personnel – A person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. (Source: EPA’s 2008 Construction General Permit)

Receiving Water – the “Water of the United States” as defined in 40 CFR §122.2 into which the regulated stormwater discharges. (Source: 2008 CGP)

Small Construction Activity – includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb

less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Stormwater control measure – see control measure.

Structural Control - physically designed, installed, and maintained practices used to prevent or reduce the discharge of pollutants in stormwater, to minimize erosion, and/or to minimize the impacts of stormwater on waterbodies.

Wasteload Allocation – the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. Wasteload allocations constitute a type of water quality-based effluent limitation. (40 CFR 130.2)

ATTACHMENT

31



National Management Measures to Control Nonpoint Source Pollution from Hydromodification





United States Environmental Protection Agency
Office of Water
Washington, DC 20460
(4503T)

EPA 841-B-07-002
July 2007

National Management Measures
to Control Nonpoint Source Pollution from Hydromodification

Nonpoint Source Control Branch
Office of Wetlands, Oceans and Watersheds
U.S. Environmental Protection Agency
Office of Water

July 2007

Disclaimer

This document provides technical guidance to states, territories, authorized tribes, and the public for managing hydromodification and reducing associated nonpoint source pollution of surface and ground water. At times, this document refers to statutory and regulatory provisions, which contain legally binding requirements. This document does not substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally-binding requirements on EPA, states, territories, authorized tribes, or the public and may not apply to a particular situation based upon the circumstances. EPA, state, territory, and authorized tribe decision makers retain the discretion to adopt approaches to manage hydromodification and reduce associated NPS pollution of surface and ground water on a case-by-case basis that differ from this guidance where appropriate. EPA may change this guidance in the future.

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Chapter 1: Introduction

The Nation's aquatic resources are among its most valuable assets. Although environmental protection programs in the United States have improved water quality during the past 35 years, many challenges remain. Significant strides have been made in reducing the impacts of discrete pollutant sources, but some aquatic ecosystems remain impaired, due in part to complex pollution problems caused by nonpoint source (NPS) pollution.¹ Of special concern are the problems in our streams, lakes, estuaries, aquifers, and other water bodies caused by runoff that is inadequately controlled or treated. These problems include changes in flow, increased sedimentation, higher water temperature, lower dissolved oxygen, degradation of aquatic habitat structure, loss of fish and other aquatic populations, and decreased water quality due to increased levels of nutrients, metals, hydrocarbons, bacteria, and other constituents.

What is Hydromodification?

USEPA (1993) defines hydromodification as the "alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources." Examples of hydromodification in streams include dredging, straightening, and, in some cases, complete stream relocation. Other examples include construction in or along streams, construction and operation of dams and impoundments, channelization in streams, dredging, and land reclamation activities. Hydromodification can also include activities in streams that are being done to maintain the stream's integrity such as removing snags.² Some indirect forms of hydromodification, such as erosion along streambanks or shorelines, are caused by the introduction or maintenance of structures in or adjacent to a waterbody and other activities, including many upland activities, that change the natural physical properties of the waterbody.

EPA has grouped hydromodification activities into three categories: (1) channelization and channel modification, (2) dams, and (3) streambank and shoreline erosion. The following definitions are offered to clarify the hydromodification activities associated with these three categories:

Channelization and channel modification include activities such as straightening, widening, deepening, and clearing channels of debris and sediment. Categories of channelization and channel modification projects include flood control and drainage, navigation, sediment control, infrastructure protection, mining, channel and bank instability, habitat improvement/enhancement, recreation, and flow control for water supply (Watson et al., 1999). Channelization activities can play a critical role in NPS pollution by increasing the timing and delivery of pollutants, including sediment, that enter the water. Channelization can also be a cause of higher flows during storm events, which potentially increases the risk of flooding.

¹ For more information on NPS pollution, go to EPA's website at <http://www.epa.gov/owow/nps>.

² A tree or branch embedded in a lake or stream bed and constituting a hazard to navigation; a standing dead tree.

Dams³ are artificial barriers on waterbodies that impound or divert water and are built for a variety of purposes, including flood control, power generation, irrigation, navigation, and to create ponds, lakes, and reservoirs for uses such as livestock watering, municipal water supply, fish farming, and recreation. While these types of dams are constructed to provide benefits to society, they can contribute to NPS pollution. For example dams can alter flows, which ultimately can cause impacts to water quality (changes to temperature or dissolved gases) and biological/habitat (disruption of spawning or altering of plant and benthic communities) above and below the dam.

Streambank and shoreline erosion are the wearing away of material in the area landward of the bank along non-tidal streams and rivers. Streambank erosion occurs when the force of flowing water in a river or stream exceeds the ability of soil and vegetation to hold the banks in place. Eroded material is carried downstream and redeposited in the channel bottom or in point bars located along bends in the waterway. Shoreline erosion occurs in large open waterbodies, such as the Great Lakes or coastal bays and estuaries, when waves and currents sort coarser sands and gravels from eroded bank materials and move them in both directions along the shore away from the area undergoing erosion. While the underlying forces causing the erosion may be different for streambank and shoreline erosion, the results (erosion and its impacts) are usually similar. It is also important to note that streambank and shoreline erosion are natural processes and that natural background levels of erosion also exist. However, human activities along or adjacent to streambanks or shorelines may increase erosion and other nonpoint sources of pollution.

Why is NPS Guidance on Hydromodification Important?

Hydromodification is one of the leading sources of impairment in our nation's waters. According to the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a), there are almost 3.7 million miles of rivers and streams⁴ in the United States. Approximately 280,000 miles of assessed rivers and streams in the United States are impaired for one or more designated uses, which include aquatic life support, fish consumption, primary and contact recreation, drinking water supply, and agriculture. Many of the pollutants causing impairment are delivered to surface and ground waters from diffuse sources, such as agricultural runoff, urban runoff, hydrologic modification, and atmospheric deposition of contaminants. The leading causes of

³ Dams are defined according to Title 33 of the Code of Federal Regulations, section 222.6(h) (2003) as all artificial barriers together with appurtenant works which impound or divert water and which (1) are 25-feet or more in height or (2) have an impounding capacity of 50 acre-feet or more. Barriers that are six-feet or less in height, regardless of storage capacity or barriers that have a storage capacity at maximum water storage elevation of fifteen acre-feet or less regardless of height are not included. Federal regulations define dams for the purpose of ensuring public safety. For example, 33 CFR 222.6 states objectives, assigns responsibilities, and prescribes procedures for implementation of a National Program for Inspection of Non-Federal Dams. Most states use this or a very similar definition, which creates a category of dams that requires some form of inspection to ensure that they are structurally sound. Dams smaller than those defined above, such as those used to create farm ponds, are authorized under the NRCS program.

⁴ Approximately 700,000 miles (19%) of the total 3.7 million miles of rivers and streams in the United States were assessed for the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a).

beneficial use impairment (partially or not supporting one or more uses) are nutrients, sediment, pathogens (bacteria), metals, pesticides, oxygen-depleting materials, and habitat alterations (USEPA, 2002a).

The *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a) identified hydrologic modifications (i.e., hydromodification) as a leading source of water quality impairment in assessed surface waters. Of the 11 pollution source categories listed in the report, hydromodification was ranked as the second leading source of impairment in assessed rivers, second in assessed lakes, and sixth in assessed estuaries (Table 1.1). Three major types of hydromodification activities—channelization and channel modification, dams, and streambank and shoreline erosion—change a waterbody’s physical structure as well as its natural functions.

Many hydromodification activities are necessary because of human activities. For example, hardening of streambanks to correct headcutting and streambank erosion is often necessary because of changes in landuse that increase impervious surfaces. While hydromodification activities are intended to provide some form of benefit (e.g., levees for reducing flooding, electricity from hydroelectric dams, or bulkheads to reduce shoreline erosion and protect valuable property), there may be unintended consequences resulting from the activity. To illustrate, levees may provide local flood reduction by keeping storm flows from spreading onto flood plains. However, these same levees may alter riparian wetland habitat that once relied on seasonal flooding.

Table 1.1 Leading Sources of Water Quality Impairment Related to Human Activities for Rivers, Lakes, and Estuaries (USEPA, 2002a)

	Rivers and Streams	Lakes, Ponds, and Reservoirs	Estuaries
Sources^a	Agriculture (48%) ^b	Agriculture (41%)	Municipal Point Sources (37%)
	Hydrologic Modification (20%)^c	Hydrologic Modification (18%)	Urban Runoff/Storm Sewers (32%)
	Habitat Modification (14%) ^d	Urban Runoff/Storm Sewers (18%)	Industrial Discharges (26%)
	Urban Runoff /Storm Sewers (13%)	Nonpoint Sources (14%)	Atmospheric Deposition (23%)
	Forestry (10%)	Atmospheric Deposition (13%)	Agriculture (18%)
	Municipal Point Sources (10%)	Municipal Point Sources (12%)	Hydrologic Modification (14%)
	Resource Extraction (10%)	Land Disposal (10%)	Resource Extraction (12%)

^a Excluding unknown, natural, and “other” sources.

^b Values in parentheses represent the approximate percentage of surveyed river miles, lake acres, or estuary square miles that are classified as impaired due to the associated sources.

^c Hydrologic modifications include flow regulation and modification, dredging, and construction of dams. These activities may alter a lake’s habitat in such a way that it becomes less suitable for aquatic life (USEPA, 2002a).

^d Habitat modifications result from human activities, such as flow regulation, logging, and land-clearing practices. Habitat modifications—changes such as the removal of riparian (stream bank) vegetation—can make a river or stream less suitable for the organisms inhabiting it (USEPA, 2002a).

Purpose and Scope of the Guidance

National summaries, such as those shown in Table 1.1, are useful in providing an overview of the magnitude of problems associated with hydromodification. Solutions, however, are usually applied at the local level. For example, in Maryland, the Shore Erosion Task Force, after investigating shore erosion in the state, published recommendations to be implemented under a Comprehensive Shore Erosion Control Plan. To initiate statewide planning, the Maryland Department of Natural Resources established partnerships with two coastal counties that were significantly affected by shoreline erosion. These state-local partnerships enable the state to better identify and correct shoreline erosion problems throughout Maryland (MDNR, 2001).

State and local elected officials and agencies, landowners, developers, environmental and conservation groups, and others play a crucial role in working together for protecting, maintaining, and restoring water resources that are impacted by hydromodification activities. These local efforts, in aggregate, form the basis for changing the status of hydromodification as a national problem.

This guidance document provides background information about NPS pollution and offers a variety of solutions for reducing NPS pollution resulting from hydromodification activities. The background information provided in Chapter 2 includes a discussion of sources of NPS pollution associated with hydromodification and how the generated pollutants enter the Nation's waters. Chapter 3 (Channelization and Channel Modification), Chapter 4 (Dams), and Chapter 5 (Streambank and Shoreline Erosion) present technical information about how certain types of NPS pollution can be reduced or eliminated.

Since hydromodification is not associated with localized impacts and solutions, Chapter 6 provides a discussion on the broad concept of assessing and addressing water quality problems on a watershed level. Chapter 7 provides detailed information for practices that can be used to implement the management measures presented in this guidance. Chapter 8 provides a discussion of available models and assessment approaches that could be used to determine the effects of hydromodification activities. Chapter 9 summarizes additional dam removal information, including permitting requirements, process, and techniques for dam removal. The primary goal of this guidance document is to provide technical assistance to states, territories, tribes, local governments, and the public for managing hydromodification and reducing associated NPS pollution.

Document Organization

This document is divided into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Background
- Chapter 3: Channelization and Channel Modification
- Chapter 4: Dams
- Chapter 5: Streambank and Shoreline Erosion

- Chapter 6: Guiding Principles
- Chapter 7: Practices for Implementing Management Measures
- Chapter 8: Modeling Information
- Chapter 9: Dam Removal Requirements, Process, and Techniques
- References Cited
- Additional Resources
- Appendix A: Federal, State, Nonprofit, and Private Financial and Technical Assistance Programs
- Appendix B: U.S. Environmental Agency Contacts

Activities to Control NPS Pollution

Historical Perspective

During the first 15 years of the national program to abate and control water pollution (1972–1987), EPA and the states focused most of their water pollution control activities on traditional point sources, which are stationary locations or fixed facilities from which pollutants are discharged; any single identifiable source of pollution (e.g., a pipe, ditch). EPA and the states have regulated these point sources through the National Pollutant Discharge Elimination System (NPDES) permit program established by section 402 of the Clean Water Act (CWA).⁵ The NPDES program functions as the primary regulatory tool for assuring that state water quality standards are met. NPDES permits, issued by an authorized state or EPA, contain discharge limits designed to meet water quality standards and national technology-based effluent regulations.

In 1987, in view of the progress achieved in controlling point sources and the growing national awareness of the increasingly dominant influence of NPS pollution on water quality, Congress amended the CWA to focus greater national efforts on nonpoint sources.

Federal Programs and Funding

The CWA establishes several reporting, funding, and regulatory programs that address pollutants carried in runoff that is not subject to confinement or treatment. These programs relate to watershed management and nonpoint source control. Readers are encouraged to use the information contained in this guidance to develop nonpoint source management programs/plans that comprehensively address the following EPA programs:

- *Section 319 Grant Program.* Under section 319 of the CWA, EPA awards funds to states and eligible tribes to implement NPS management programs. These funds can be used for projects that address nonpoint source related sources of pollution, including hydromodification.⁶
- *Clean Water State Revolving Fund.* The Clean Water State Revolving Fund (CWSRF) program is an innovative method of financing environmental projects. Under the

⁵ For more information on the NPDES program, refer to EPA's NPDES website at <http://cfpub.epa.gov/npdes>.

⁶ More information about the section 319 program is provided at <http://www.epa.gov/owow/nps/cwact.html>.

program, EPA provides grants or “seed money” to all 50 states plus Puerto Rico to capitalize state loan funds. The states, in turn, make loans to communities, individuals, and others for high-priority water quality activities. As money is paid back into the revolving fund, new loans are made to other recipients. When funded with a loan from this program, a project typically costs much less than it would if funded through the bond market. Many states offer low or no interest rate loans to small and disadvantaged communities. In recent years, state programs have begun to devote an increasing volume of loans to nonpoint source, estuary management, and other water-quality projects. Eligible NPS projects include almost any activity that a state has identified in its nonpoint source management plan. Such activities include projects to control runoff from agricultural land; conservation tillage and other projects to address soil erosion; development of streambank buffer zones; and wetlands protection and restoration.⁷

- *Total Maximum Daily Loads.* Under section 303(d) of the CWA, states are required to compile a list of impaired waters that fail to meet any of their applicable water quality standards. This list, called a 303(d) list, is submitted to Congress every 2 years, and states are required to develop a Total Maximum Daily Load (TMDL) for each pollutant causing impairment for waterbodies on the list.⁸
- *Water Quality Certification.* Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that “may result in any discharge” into navigable waters must obtain a certification from the state or tribe in which the discharge originates that the discharge will comply with various provisions of the CWA, including sections 301 and 303. The federal license or permit may not be issued unless the state or tribe has granted or waived certification. The certification shall include conditions, e.g., “effluent limitations or other limitations” necessary to assure that the permit will comply with the state’s or tribe’s water quality standards or other appropriate requirements of state or tribal law. Such conditions must be included in the federal license or permit.
- *National Estuary Program.* Under the National Estuary Program, states work together to evaluate water quality problems and their sources, collect and compile water quality data, and integrate management efforts to improve conditions in estuaries. To date, 28 estuaries have been accepted into the program. Estuary programs can be an excellent source of water quality data and can provide information on management practices.⁹
- *Safe Drinking Water Act.* Many areas, especially urban fringe areas, need to maintain or improve the quality of surface and ground waters that are used as drinking water sources. This act requires states to develop Source Water Assessment Reports and implement Source Water Protection Programs. Low- or no-interest loans are available under the Drinking Water State Revolving Fund (SRF) Program.¹⁰

⁷ Additional information about CWSRF is available at <http://www.epa.gov/OWM/cwfinance/cwsrf/index.htm>.

⁸ More information on the TMDL program and 303(d) lists is provided at <http://www.epa.gov/owow/tmdl>.

⁹ More information on the National Estuary Program is provided at <http://www.epa.gov/nep>.

¹⁰ More information about the Safe Drinking Water Act and Source Water Protection Programs can be found at <http://www.epa.gov/safewater/sdwa/index.html> and <http://www.epa.gov/safewater/protect.html>.

- *Wildlife Habitat Incentives Program (WHIP)*. WHIP¹¹ is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 (Farm Bill)¹² that enables landowners to apply for technical and financial assistance to improve wildlife habitat. The program is administered by the Natural Resources Conservation Service (NRCS), which works with private landowners and operators, conservation districts, and federal, state, and tribal agencies to improve terrestrial and aquatic habitats. NRCS and participants work together to create a wildlife habitat development plan that includes a cost-share agreement. Continued assistance after habitat development includes monitoring, review of management guidelines, and technical advice. WHIP funds may also be used for dam removal. Additional information is available from an NRCS WHIP fact sheet.¹³

Two excellent resources for learning more about the CWA and the many programs established under it are *The Clean Water Act: An Owner's Manual* (Killam, 2005) and *The Clean Water Act Desk Reference* (WEF, 1997).

Introduction to Management Measures

Management measures may be implemented as part of state, tribal, or local programs to control nonpoint source pollution for a variety of purposes, including protection of water resources, aquatic wildlife habitat, and land downstream from increased pollution and flood risks. They can be used to guide in the development of a runoff management program. Management measures establish performance expectations and, in many cases, specify actions that can be taken to prevent or minimize nonpoint source pollution from hydromodification activities. Management measures might control the delivery of NPS pollutants to receiving water resources by:

- Minimizing pollutants available (source reduction)
- Retarding the transport and/or delivery of pollutants, either by reducing water transported, and thus the amount of the pollutant transported, or through deposition of the pollutant
- Remediating or intercepting the pollutant before or after it is delivered to the water resource through chemical or biological transformation

Management measures are generally designed to control a particular type of pollutant from specific activities and land uses. The intent of the six management measures in this guidance document is to provide information for addressing and considering the NPS pollution potential associated with hydromodification activities. Implementation of management measures can minimize and control hydromodification NPS pollution through erosion and sediment control, chemical and pollutant control, management of instream and riparian habitat restoration, and protection of surface water quality.

¹¹ <http://www.nrcs.usda.gov/programs/whip>

¹² <http://www.nrcs.usda.gov/programs/farmbill/2002>

¹³ <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/WHIPFct.pdf>

Activities associated with these management measures may be regulated by federal, state, or local law (e.g., section 404 of the Clean Water Act). These measures do not supersede such requirements. Sometimes regulatory authorities may appear to conflict, as is sometimes the case of the CWA and water use and distribution. CWA sections 101(g) and 510 specifically allow for resolution of the conflict by placing water use and its distribution under the authority of the states, thus protecting any state agreements on “water rights.” Users of this NPS guidance should recognize that the applicability of the guidance provided in this document will remain subject to state statutes, interstate compacts, and international treaties. As such, this guidance does not recommend or require any management measures or practices that hinder a state’s ability to exercise existing water rights, which provide water for municipal, industrial, and agricultural needs. For further information regarding specific state policies on water rights and regulations of water use, contact the appropriate state water agency. Contact information is generally provided on state government Web sites.

This document also lists and describes management practices for each management measure. Management practices are specific actions taken to achieve, or aid in the achievement of, a management measure. A more familiar term might be best management practice (BMP). The word “best” has been dropped for the purposes of this guidance (as it was in the Coastal Management Measures Guidance (USEPA, 1993)) because the adjective is too subjective. The “best” practice in one area or situation might be entirely inappropriate in another area or situation. The practices listed in this document have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measures. EPA recognizes that there is often site-specific, regional, and national variability in the selection of appropriate practices, as well as in the design constraints and pollution control effectiveness of practices. The practices presented for each management measure are not all-inclusive. States or local agencies and communities might wish to apply other technically and environmentally sound practices to achieve the goals of the management measures.

Channelization and Channel Modification (Chapter 3)

Channelization can cause a variety of instream flow changes and may result in the faster delivery of pollutants to downstream areas. Channel modification might result in a combination of harmful effects (higher flows or increased risk of downstream flooding) and beneficial effects (local flood control or enhanced flushing in a stream channel). The management measures for channelization and channel modification are intended to protect waterbodies by ensuring proper planning before a proposed project is implemented. Planning and evaluation can help to identify and prevent local and downstream problems before a project is started. An added benefit of planning and evaluation is to correct or prevent detrimental changes to the instream and riparian habitat associated with the project. Implementation of the management measures can also ensure that operation and maintenance programs for existing projects improve physical and chemical characteristics of surface waters and restore or maintain instream and riparian habitat when possible.

Management Measure 1: Physical and Chemical Characteristics of Surface Water:

Ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of the proposed work. For existing projects, ensure that operation and maintenance programs use any opportunities available to improve the physical and chemical characteristics of surface waters.

Management Measure 2: Instream and Riparian Habitat Restoration: Correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects, both proposed and existing.

Dams (Chapter 4)

Because of their instream locations, any construction activities associated with dams have the potential to introduce sediment and other pollutants into adjacent waterbodies. Construction activities, chemical spills during dams operation or maintenance, and changes in the quantity and quality of water held and released by a dam may alter the nature of the waterbody. The management measures for dams are intended to be applied to the construction of new dams, as well as any construction activities associated with the maintenance of existing dams. They can also be applied to dam operations that result in the loss of desirable surface water quality, and instream and riparian habitat.

Management Measure 3: Erosion and Sediment Control: Prevent sediment from entering surface waters during the construction or maintenance of dams.

Management Measure 4: Chemical and Pollutant Control: Prevent downstream contamination from pollutants associated with dam construction and operation and maintenance activities.

Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat: Protect the quality of surface waters and aquatic habitat in reservoirs and in the downstream portions of rivers and streams that are influenced by the quality of water contained in the releases (tailwaters) from reservoir impoundments.

Streambank and Shoreline Erosion (Chapter 5)

NPS pollution might result from the rapid increase in erosion of streambanks caused by increased flow rates associated with urbanization in a watershed. Not only is the land adjacent to these eroding streambanks unnaturally carried away, but these eroded soils are carried downstream and deposited in often undesirable locations. Shorelines erode more severely as the result of poorly planned and implemented shoreline protection projects located nearby. Habitats can be buried and wetlands can be filled. As runoff upstream increases, more erosion results on downstream streambanks. The streambank and shoreline erosion management measure promotes the necessary actions required to correct streambank and shoreline erosion where it must be controlled. Because erosion is a natural process, this management measure is not intended to be applied to all erosion occurring on streambanks and shorelines.

Management Measure 6: Eroding Streambanks and Shorelines: Protect streambanks and shorelines from erosion and promote institutional measures that establish minimum setback requirements or measures that allow a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

Channelization and channel modification and dams represent forms of hydromodification that are direct results of human activities—someone performs a construction activity directly in or along a stream, river, or shoreline. For example, a town constructs concrete lined channels along a stream passing through the city limits to reduce stream meandering and prevent flooding. Another example is the construction (many years ago) of a dam in a stream for hydropower at a grist mill. Streambank and shoreline erosion are forms of hydromodification that result from direct and indirect human activities. For example, a streambank is eroding at a much faster rate because of recent development activities on shore that result in increased runoff, which is causing increased bank erosion. Another example is a concrete seawall that is protecting property at one location, but causing increased erosion on adjacent properties.

This distinction between forms of hydromodification and impacts from hydromodification is important when contrasting the relationship between Chapter 3 (Channelization and Channel Modification) and Chapter 5 (Streambank and Shoreline Erosion). Many of the operation and maintenance solutions presented in Chapter 3 are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5. For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with an appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source pollution problem because of the upstream development and hardened streambanks.

Chapter 2: Background

There are differing views on defining the stability of a stream channel and other waterbodies. From a navigation perspective, a stream channel is considered stable if shipping channels are maintained to enable safe movement of vessels. Landowners with property adjacent to a stream or shoreline might consider the waterbody to be stable if it does not flood and erosion is minimal. Ecologists might find some erosion of streambanks and meandering channels to be a part of natural evolution (i.e., changes that are not induced by humans) and consider long-term changes like these to be quite acceptable (Watson et al., 1999). In any case, new and existing channelization projects, construction and maintenance of dams, and streambank and shoreline erosion problems should be evaluated with these differing perspectives in mind and a balance of these perspectives should be taken into account when constructing or maintaining a project. Often, multiple priorities can be maintained with good up-front planning and communication among the different stakeholders involved.

Key Geomorphic Functions of Streams

Discharge, Slope, and Sinuosity

Figure 2.1 is a cross-section of a typical stream channel. The thalweg is the deepest part of the channel. The sloped bank is known as the scarp. The term discharge is used to describe the volume of water moving down the channel per unit time (usually described in the United States as cubic foot per second (cfs)). Discharge is the product of the area through which the water is flowing (in square feet) and the average velocity of the water (in feet per second). If discharge in a channel increases or decreases, there must be a corresponding change in streamflow velocity and/or flow area.

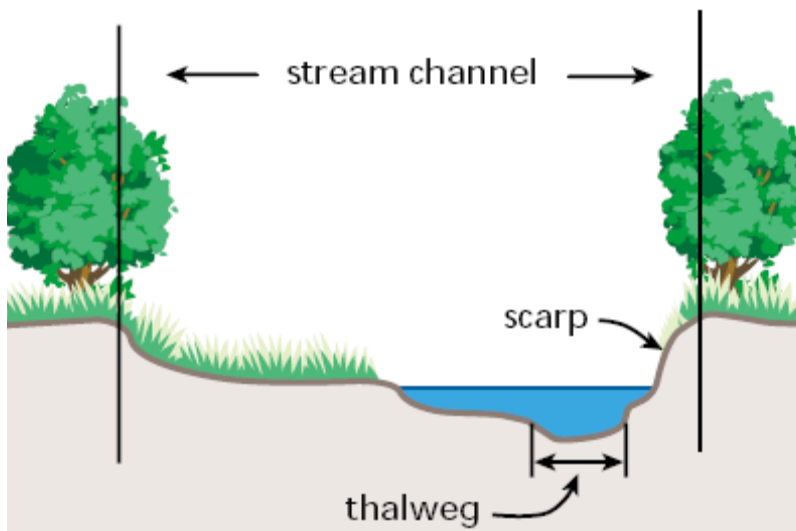


Figure 2.1 Cross-section of a Stream Channel (FISRWG, 1998)

Channel slope is an especially key concept when dealing with hydromodification projects. It is the difference in elevation between two points in the stream divided by the stream length

between the two points. Stream sinuosity greatly affects stream slope. Sinuosity is the stream length between two points on a stream divided by the valley length between the two points. A meandering stream moving through a valley has a lower slope than a straight stream.

Erosion, Transport, and Deposition of Sediment

All streams accomplish three basic geomorphic tasks:

- *Erosion*—the detachment of soil particles along the stream bed and banks
- *Sediment transport*—the movement of eroded soil particles in streamflow
- *Sediment deposition*—the settling of eroded soil particles in the water or on land as water recedes

These processes largely determine the size and shape of the channel, both laterally and longitudinally. The ability to accomplish these geomorphic tasks is related to stream power, the product of slope and discharge. Slope directly affects flow velocity. Consequently, a shallow, meandering stream with low slope generates less stream power, and has lower erosion and sediment-transport capacity, than a deep, straight stream.

In addition to sinuosity, roughness along the boundaries of a stream area is also important in determining streamflow velocity and stream power. The rougher the channel bottom and banks, the more they are able to slow down the flow of water. The level of roughness is determined by many conditions including:

- Type and spacing of bank vegetation
- Size and distribution of sediment particles
- Bedforms
- Bank irregularities
- Other miscellaneous obstructions

Tractive stress, also known as shear stress, describes the lift and drag forces that work to create erosion along the stream bed and banks. In general, the larger the sediment particle, the more stream power is needed to dislodge it and transport it downstream. When stream power decreases in the channel, larger sediment particles are deposited back to the stream bed.

Dynamic Equilibrium

One of the primary functions of a stream is to move particles out of the watershed. Erosion, sediment transport, and deposition occur all the time at both large and small scales within a channel. A channel is considered stable when the average tractive stress maintains a stable streambed and streambanks. That is, sediment particles that erode and are transported downstream from one area are replaced by particles of the same size and shape that have originated in areas upstream. Lane (1955) qualitatively described this relationship as:

$$Q_s * D \propto Q_w * S$$

Where: Q_s = Sediment discharge, D = Sediment particle size, Q_w = Streamflow, S = Stream slope

When all four variables are in balance, the channel is stable, or in dynamic equilibrium.

Lane's channel variable relationships can be visualized as a pan balance with sliding weights (Figure 2.2). Sediment discharge is placed on one pan and streamflow on the other. The hook holding the sediment load pan can slide back and forth based on changes in sediment size. Likewise, the hook holding the streamflow pan can slide according to changes in slope.

If a disturbance or stream modification occurs that causes a variable to change, one or more of the other variables must change in order to maintain the balance. During an imbalanced phase, the scale indicator will point to either degradation or aggradation. This indicates that the channel will try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation), depending on the circumstance.

For example, if stream slope is decreased and streamflow remains the same (i.e., streamflow pan slides toward the center), the balance will tip and aggradation will occur (Figure 2.3). Alternatively, if streamflow increases and slope remains the same (i.e., more weight on the streamflow pan), degradation will occur. No matter the scenario, this basic relationship between the variables will hold true and aggradation or degradation will cease only when the system reaches equilibrium. This can occur naturally over time, or through management practices designed to deal with the "balancing" issue.

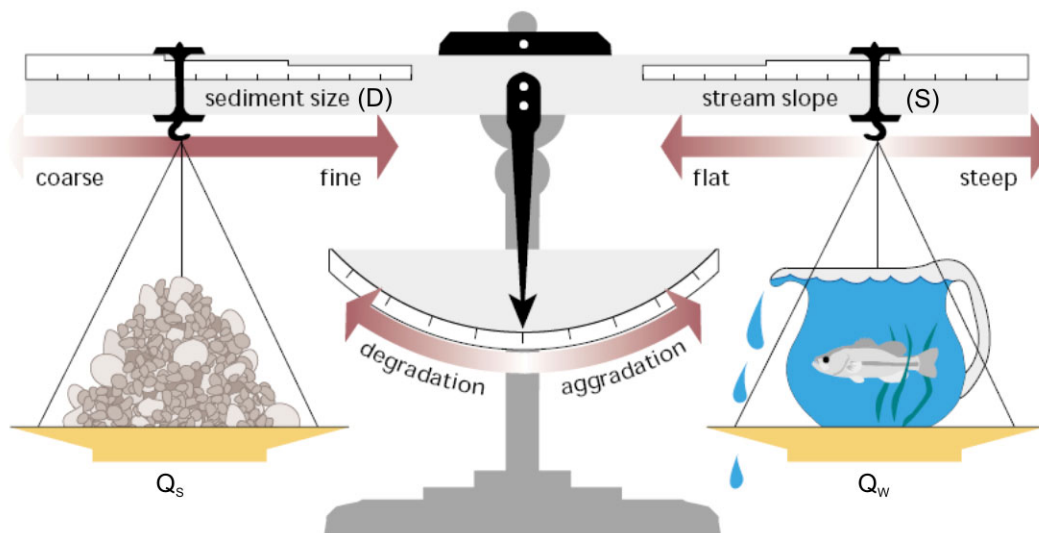


Figure 2.2 Factors Affecting Channel Degradation and Aggradation (FISRWG, 1998)

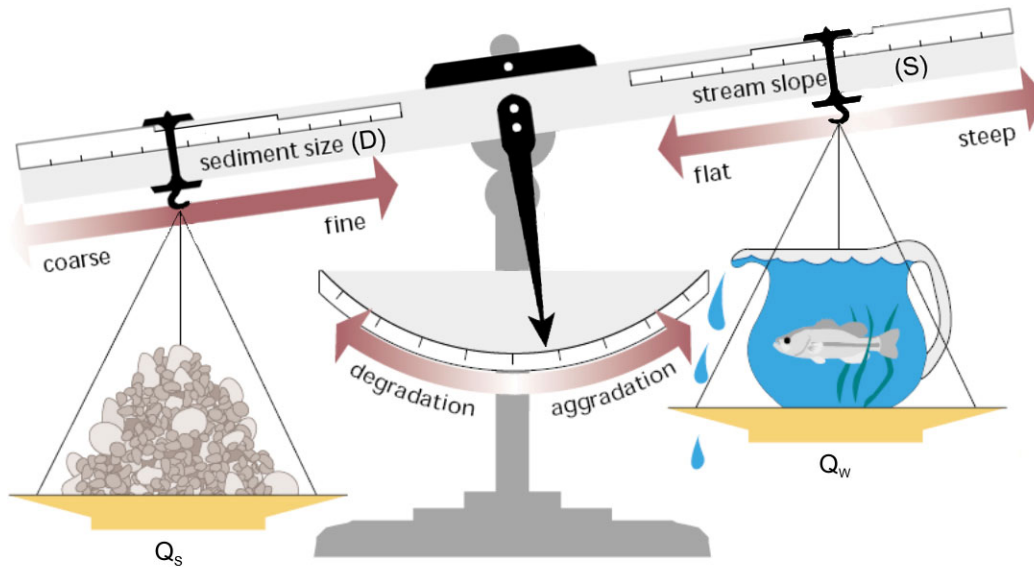


Figure 2.3 Example of Aggradation (Adapted from FISRWG, 1998)

Longitudinal View of Channels

The geomorphic processes that define the size and shape of channels can be observed in large and small scale longitudinal views. The overall longitudinal view of many streams can be divided into three general zones (Schumm, 1977):

- *Headwater zone*—characterized by steep slopes with sediment erosion as the most dominant geomorphic process.
- *Transfer zone*—characterized by more sinuous channel patterns and wider floodplains with sediment transfer as the most dominant geomorphic process.
- *Deposition zone*—characterized by lower slope and higher channel sinuosity than the other zone and is the primary deposition area for watershed sediment.

Key characteristics of each zone are summarized in Figure 2.4.

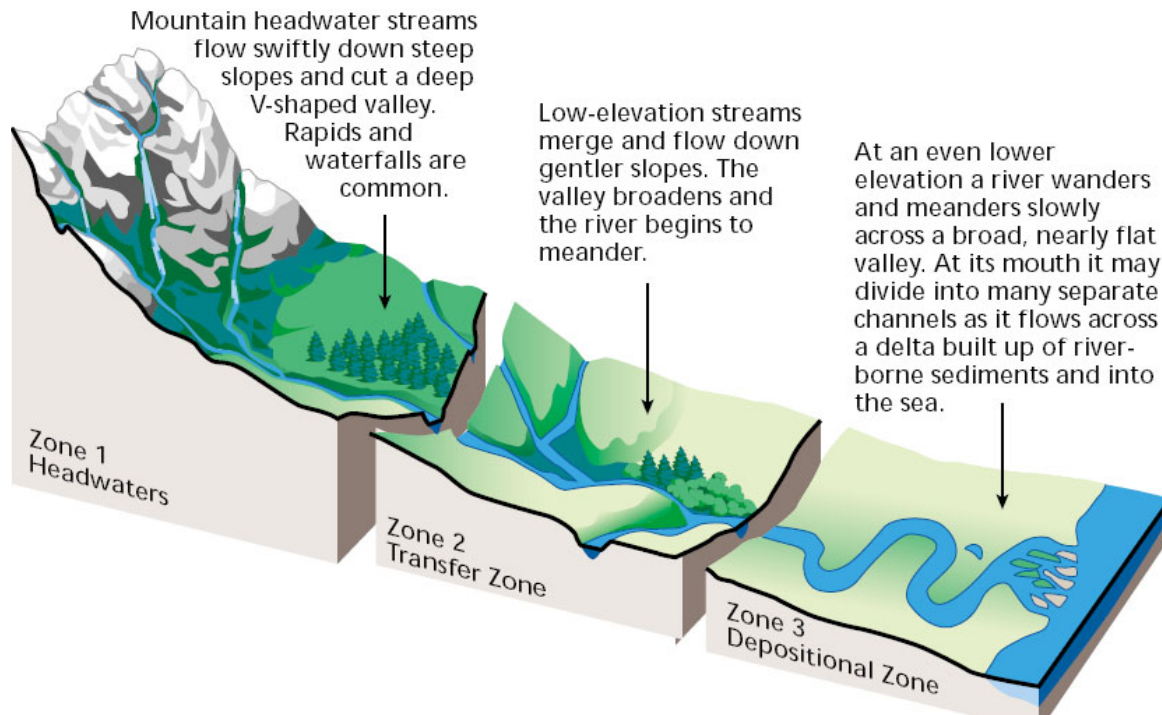


Figure 2.4 Three Longitudinal Profile Zones (FISRWG, 1998)

At a smaller scale, natural-forming channels are usually characterized by a series of riffles, pools, and runs. These structures are primarily associated with the thalweg, which meanders within the channel (Figure 2.5).

Riffles are shallow, turbulent, and swiftly flowing stretches of water that flow over partially or totally submerged rocks. Deeper areas at stream bends are the pools and can be classified as large-shallow, large-deep, small-shallow, and small-deep. Runs are the sections of a stream with little or no surface turbulence that connect pools and riffles.

The distribution in streamflow velocity and stream power throughout the riffle/pool/run sequence impact the geomorphic tasks. The stream bottom of a riffle is at a higher

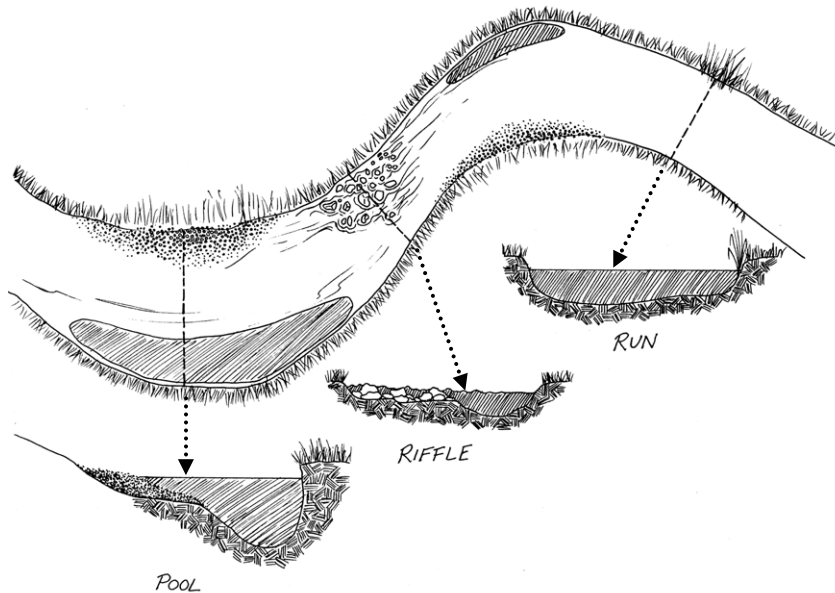


Figure 2.5 Overview of a Pool, Riffle, and Run (USEPA, 1997b)

elevation than the stream areas surrounding it. Consequently, the water flowing in a run from riffle to pool has the highest velocity near the center of the channel just under the surface (i.e., away from the roughness associated with channel boundaries). On reaching a bend, angular momentum forces the highest velocity flow to the outside of the bend and, given enough tractive stress, causes erosion to the bank (cutbanks). Meanwhile on the inside of the bend deposition often occurs because of decreasing flow velocity. Importantly, these and other characteristics of the riffle/pool/run sequence create unique habitats which allow different species to live, reproduce, and feed.

Disruption of Dynamic Equilibrium

Changes caused by (or exacerbated by) hydromodification projects and other human activities can lead to a disruption of the dynamic equilibrium of the stream channel. If, for example, a modification occurs that causes a change in sediment discharge, channel slope, or streamflow, one or more of the other variables will be imbalanced and the channel will usually try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation) (Biedenharn et al., 1997; Watson et al., 1999). In some cases, alterations to a stream channel can result in local or system-wide channel instability (FISRWG, 1998).

General Impacts of Channelization and Channel Modifications

Channelization and channel modifications are undertaken for many purposes including flood control, navigation, drainage improvement, and reduction of channel migration potential. Modifications also occur in association with the installation of culverts and bridges, urbanization of the watershed, and agricultural drainage. These changes may result in several physical and chemical impacts.

Physical Impacts

The most significant physical impact of channelization and channel modifications is the movement or deposition of sediment. Sediment erodes from stream banks and beds, is washed downstream in faster moving water, deposited in areas of slower flows, and transported into new areas of streams or other receiving waters. Critical habitat can be changed when channelization or channel modification projects alter the dynamic equilibrium of a stream and change sediment transport or deposition characteristics. Re-establishing equilibrium may take some time to occur and have long-lasting effects to habitat and water quality conditions.

Channel modification and channelization can lead to increased erosion in some areas of the stream, which produces sediment. Sediment can be dislodged and transported directly from the waterbody's shoreline, bank, or bottom. Sediment being transported by a stream is referred to as the sediment load, which is further classified as the bed load (those particles moving on or near the bed, or bottom of the channel) and the suspended load (those particles moving in the water column). Hydromodification typically results in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths.

An increase in the sediment load could lead to increased turbidity, which then may cause an increase in stream temperature because the darker sediment particles absorb heat (USEPA, 1997b). Changes in water temperature can influence several abiotic chemical processes, such as dissolved oxygen concentrations, sorption of chemicals onto particles, and volatilization rates. Water temperature influences reaeration rates of oxygen from the atmosphere. Dissolved oxygen concentrations in water are inversely related to temperature; solubility of oxygen decreases with increasing water temperature. In addition, sorption of chemicals to particulate matter and volatilization rates are influenced by changes in water temperature. Sorption often decreases with increasing temperature and volatilization increases with increasing temperature (University of Texas, 1998).

An increased sediment load that contains significant organic matter can increase the sediment oxygen demand (SOD). The SOD is the total of all biological and chemical processes in sediment that consume oxygen (USEPA, 2003a). These processes occur at or just below the sediment-water interface. Most of the SOD at the surface of the sediment is due to the biological decomposition of organic material and the bacterially facilitated nitrification of ammonia, while the SOD several centimeters into the sediment is often dominated by the chemical oxidation of species such as iron, manganese, and sulfide (Walker and Snodgrass, 1986 from USGS, 1997; Wang, 1980). Increases in SOD can lead to lower levels of dissolved oxygen, which can be harmful to aquatic life.

A channel that is deepened or widened can result in slower and/or shallower flow. Reduced stream velocities can result in more sediment deposits to a stream segment. When more sediment is deposited in an area of a stream, critical habitats can be buried, channels may become unstable, and flooding increases. In tidal areas, channel modification activities, such as deepening a channel to allow for larger ships to access a shoreline, may require frequent maintenance to remove accumulating sediment because of changes in flow patterns.

Chemical Impacts

A variety of chemicals can be introduced into surface waters when channelization and channel modification activities alter flow and sediment transport characteristics. Nutrients, metals, toxic organic compounds, pesticides, and organic materials can enter the water in eroding soils along banks and move throughout a stream as flow characteristics change. Changing temperatures and dissolved oxygen levels may lead to alterations in the bioavailability of metals and toxic organics. Complex chemical conditions can significantly change when stream flow and sedimentation characteristics change, resulting in new and/or potentially harmful forms of chemicals affecting instream or benthic organisms.

It is important to remember that many of the physical and chemical changes are interrelated. For a more detailed discussion of the impacts associated with chemical and physical changes to surface waters, see *Restoration of Aquatic Ecosystems* (NRC, 1992). The following discussion provides examples of impacts that may be present as a result of different kinds of channelization. For a more detailed discussion of types of channelization projects and potential impacts, see Watson et al. (1999).

Biological and Habitat Impacts

Pools, riffles, and runs create a mixture of flows and depths and provide a variety of habitats to support fish and invertebrate life (USEPA, 1997b). The shallow, turbulent, and swiftly flowing stretches of riffle water are well oxygenated and have a “patchy distribution of organisms,” which means that different types of organisms are naturally found in different parts of the riffle. Pools can also be large or small and shallow or deep and support a wide variety of aquatic species. Sediments can deposit in pools, which can lead to the formation of islands, shoals, or point bars.

Changes in habitat and biological communities following hydromodification of a channel can be highly site-specific and complex. The physical and chemical alterations resulting from channelization impact various habitats and biological communities, including instream algae, fish, macroinvertebrate populations, and bank or floodplain vegetation. Mathias and Moyle (1992) compared unchannelized and channelized sections of the same stream and found a much higher diversity of many organisms, including aquatic invertebrates, fish, and riparian vegetation, in the unchannelized sections of the stream. Adams and Maughan (1986) compared the benthic community in a small headwater stream, prior to and after channelization. They found that the pathways of organic input shifted from materials associated with leaf fall and runoff to materials associated with periphyton production. Accompanying this change was a shift of the assemblage from shredder domination to grazer domination and a decrease in diversity. Biological and habitat impacts caused by channelization can result from increased stream velocity, decreases in pool and riffle habitat complex, decrease in canopy cover, increase in the solar radiation reaching the channel, channel incision, and increases in sediment.

Channelization of a stream may increase velocity due to increased channel slope and decreased friction with the bank and bed material. Changes in the velocity may cause an impact to organisms within the channel. For example, fish may have to expend more energy to stay in swifter currents and their source of food may be swept downstream. Studies have demonstrated that fisheries associated with channelized streams can be far less productive than those of non-channelized streams (Jackson, 1989). Increased rates of erosion as a result of increased velocities downstream of a channelization feature can also create unstable streambanks, which could lead to increased streambank erosion, higher risks of flooding, and ultimately negative impacts to aquatic organisms.

Channelization can result in a more uniform stream channel that is void of the pool and riffle habitat complex or obstructions, such as woody debris inputs. As repeatedly observed, this can result in changes to the biological community. Negishi et al. (2002) observed a decrease in the total density of macroinvertebrates in the middle of a channelized stream and a decrease in taxon richness in the middle and edge of a channelized stream. An overall reduction in habitat heterogeneity is likely responsible for the reduction in species diversity and the increased abundance of those species favored by the altered flows that is typically observed (Allan, 1995). On medium-sized, unregulated rivers, Benke (2001) found that habitat-specific invertebrate biomass was highest on snags, followed by the main channel and then the floodplain. It was concluded that invertebrate productivity from these habitats has likely been significantly diminished as a result of snag removal, channelization, and floodplain drainage (Benke, 2001).

The survival of the Gulf Coast walleye (*Stizostedion vitreum*) relies on the availability of appropriate spawning habitat, such as large woody debris, that locally reduce current velocity. Channelization and the removal of structures have been identified as activities of concern that could threaten the survival of the species (VanderKooy and Peterson, 1998). In one experiment, an assessment of water quality using environmental indices, such as macroinvertebrate communities, found that channelization and deforestation resulted in a completely different and less varied biocommunity (Bis et al., 2000). A lower persistence of the macroinvertebrate assemblage in the channelized stream was attributed to the lower availability of flow such as backwaters and inundated habitats (Negishi et al., 2002). In a study by Kubecka and Vostradovsky (1995), low fish populations were attributed to channelization of the riverbed.

The channelization of a river can also result in a decrease in canopy cover and an increase in the solar radiation reaching the channel. Bis et al. (2000) found that an increase in incident radiation on a river resulted in increased algal productivity and a significant decrease in scrapers, a macroinvertebrate that feeds on periphyton or algae growing on plant surfaces. Increased water temperatures can also lead to a shift in the algal community to predominately planktonic algal communities, which disrupts the aquatic food chain (Galli, 1991). The combination of increased water temperatures and loss of riparian vegetation falling into the stream (which provides both food and cover) may be responsible for the decrease in macroinvertebrates. Increased solar radiation on a channelized stream can act to decrease productivity by reaching the level of photoinhibition; a decrease in productivity due to excessive amounts of solar radiation. The temperature of the water can also be increased to the extent that it adversely impacts organisms. Elevated temperatures disrupt aquatic organisms that have narrow temperature limits, such as trout, salmon, and many aquatic insects.

Incision of a channel, a common impact of channelization, disconnects the channel from the floodplain by lowering the riverbed relative to the floodplain and decreasing the occurrence of overbank flow. Channel incision or downcutting has rarely been found to directly affect the biotic ecosystem, but indirect changes in habitat conditions are significant. Channel incision decreases habitat heterogeneity and, as a result, biodiversity (Tachet, 1997). An analysis of forest overstory, understory, and herbaceous strata along a channelized and unchannelized stream showed that there was a difference in terms of size-class structure and woody debris quantity (Franklin et al., 2001). Loss of woody vegetation along riparian zones on a channel that is incised because of upstream channelization was attributed to a decrease in over bank flooding and a lowering of the water table as the stream became incised (Steiger et al., 1998). A comparison of a regulated and an unregulated river in Colorado's Green River Basin found a difference in riparian vegetation composition. The regulated river supported banks with wetland species that survive in anaerobic soils and terraces with desert species adapted to xeric soil conditions. The unregulated river supported riparian vegetation that changed along a more gradual environmental continuum from a river channel to a high floodplain (Merritt and Cooper, 2000).

Sediment affects the use of water in many ways. When the rate of erosion changes, transport and deposition of sediment also changes. Excessive quantities of sediment can bury benthic organisms and the habitat of fish and waterfowl. Suspended solids in the water reduce the amount of sunlight available to aquatic plants, cover fish spawning areas and food supplies, fill

rearing pools, reduce beneficial habitat structure in stream channels, smother coral reefs, clog the filtering capacity of filter feeders, and clog and harm the gills of fish. Those fish species that rely on visual means to get food may be restricted by increased turbidity. Sedimentation effects combine to reduce fish, shellfish, coral, and plant populations and decrease the overall productivity of lakes, streams, estuaries, and coastal waters.

Impacts Associated with Specific Hydromodification Actions

Channel Straightening and Deepening

Channels are straightened for a multitude of reasons, such as directing water away from a particular structure or area and reducing local flooding. Channelization that involves straightening of the stream channel increases the slope of the channel, which results in higher discharge velocities. Impacts associated with increased water velocities include more streambank and streambed erosion, higher sediment loads, changes in pools, riffle, and run structure, and increased transport of nutrients and other pollutants (FISRWG, 1998; Simons and Senturk, 1992).

Channelization can also result in alterations to the base level of the stream, including channel downcutting or incision of a section of the stream, which raise the height of the floodplain relative to the riverbed and decrease the frequency of overbank flow. When streams reach flood stage and flow into the floodplain, velocities decrease. The reduction in overbank flow reduces sediment deposition and the sediment storage potential of the floodplain (Wyzga, 2001). A change in the downstream base level of a stream can create an unstable stream system (Biedenharn et al., 1997).

Headcutting is the deepening of a waterway caused by channelization or localized stream-bed mining. Headcutting severely impacts the physical integrity of a stream, as streambanks become unstable and are more prone to eroding and sloughing. Bank failures may result, removing streamside vegetation and introducing significant amounts of sediment into the waterway. As sediments build on the stream bottom, natural substrate is covered and stream depth decreases. Water quality often diminishes as temperatures rise due to less shading by riparian vegetation and increased water surface area with decreased depth. The rapid alteration to stream habitat caused by headcutting is usually detrimental to aquatic wildlife. Various organizations, such as the U.S. Army Corps of Engineers, the Natural Resources Conservation Service (NRCS), and the Missouri Department of Conservation, are involved in projects to reduce headcutting (CSU, n.d.; MDC, 2007; USGS, 2000).

Channel Lining

The sides of channels can be lined with materials such as metal sheeting, concrete, wood, or stone to prevent erosion of a particular section of stream channel or stream bank. The artificially lined areas can reduce the friction between the channel and flowing water, leading to an increase in velocity. The increased velocity and thus the increased erosive potential of the flowing water are not able to erode the artificially lined channel area and can result in augmented erosion downstream as well as increased downstream flooding (Brookes, 1998). Lining the channel also removes aquatic habitat and important substrates that are essential to aquatic life.

Channel Narrowing

Narrowing of a stream channel often occurs when flood control measures such as levees and floodwalls are implemented. By narrowing a stream channel, the water is forced to flow through a more confined area and thus travels at an increased velocity (FISRWG, 1998). The increased velocity in turn increases the stream's erosive potential and ability to transport sediment. This can lead to increased erosion of the streambank and shoreline in downstream locations.

When a channel is made narrower, the water depth increases and the surface area exposed to the solar radiation and ambient temperature decreases, especially in the warmer months. This can cause a decrease in the water temperature. Increased depth may also reduce the surface area of the water in contact with the atmosphere and affect the transfer of oxygen into the water.

In a naturally flowing stream, floods are responsible for such processes as redistributing sediment from the river bottom to form sandbars and point bar deposits. Stream channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. This can lead to increased erosion of the streambank and shoreline in downstream locations (FISRWG, 1998).

Channel Widening

Channel widening is often performed to increase a channel's ability to transport a larger volume of water. The design is often based on volumes of water that occur during flood events. The design of a channel modification project to increase the channel's ability to transport a large volume of water will determine the characteristic of the water flow. The widening of a channel can result in a channel with a capacity to transport water that far exceeds the typical daily discharge. This results in a typical flow that is shallow and wide. As a result of increased contact with the streambed and streambank, there is increased friction and a decreased water velocity. The decrease in velocity causes sediment to settle out of the water column and accumulate within the stream channel. This accumulation of sediment can decrease the capacity of the stream channel. The decreased depth and increased surface area of the water exposed to solar radiation and ambient air temperatures can lead to an increase in water temperature. A change in water temperature can influence dissolved oxygen concentrations as dissolved oxygen solubility decreases with increasing water temperature.

Where tidal flow restrictors cause impoundments, there may be a loss of streamside vegetation, disruption of riparian habitat, changes in the historic plant and animal communities, and decline in sediment quality. Restricted flows can impede the movement of fish or other aquatic life. Flow alteration can reduce the level of tidal flushing and the exchange rate for surface waters within coastal embayments, with resulting impacts on the quality of surface waters and on the rates and paths of sediment transport and deposition.

Culverts and Bridges

The presence of culverts and bridges along a channel can have an impact on the physical and chemical qualities of the water. A culvert can be in the form of an arch over a channel or a pipe that encircles a channel, and it functions to direct flow below a roadway or other land use. A culvert or the supports of a bridge can confine the width of a channel forcing the water to flow in a smaller area and thus at a higher velocity. Impacts associated with a higher flow velocity

include increased erosion. An arch culvert maintains the natural integrity of the stream bottom. In addition, as compared with the natural substrate that can be found using an arch culvert without concrete invert (floors), a pipe culvert may create less friction with the water flow and result in an increased flow velocity. The chemical and physical changes associated with increased erosion and sediment transport capacity would then result.

The culvert acts as a fixed point with a fixed elevation within the stream channel and as the stream attempts to adjust over time, the culvert remains stationary. Placement of this type of structure disturbs the natural equilibrium of a channel. A culvert sometimes may have beneficial attributes when it acts as a grade control structure, and as such, may serve to prevent upstream migrating incision (headcutting) from moving further up the channel. Depending on the watershed processes, the culvert may act to preserve the natural equilibrium of a channel.

Urbanization

As humans develop watersheds, the proportions of pervious and impervious land within the watershed change (most often increasing impervious areas and decreasing pervious areas). Development also results in reductions in vegetative cover in exchange for increases in houses, buildings, roads, and other non-vegetative cover. The result is a change in the fate of water from rainfall events. Generally, as imperviousness increases and vegetative cover is lost:

- Runoff increases
- Soil percolation decreases
- Evaporation decreases
- Transpiration decreases

Increased volumes of runoff resulting from some types of watershed development can result in hydraulic changes in downstream areas including bank scouring, channel modifications, and flow alterations (Anderson, 1992; Schueler, 1987). The resulting changes to the distribution, amount, and timing of flows caused by flow alterations can affect a wide variety of living resources. As urbanization occurs, changes to the natural hydrology of an area are inevitable. During urbanization, pervious spaces, including vegetated and open forested areas, are converted to land uses that usually have increased areas of impervious surface, resulting in increased runoff volumes and pollutant loadings. Hydrologic and hydraulic changes occur in response to site clearing, grading, and change in landscape. Water that previously infiltrated the ground and was slowly released runs off quickly into stream networks. Development, with corresponding increases in imperviousness, can lead to:

- Increased magnitude and frequency of bankfull and subbankfull floods
- Dimensions of the stream channel that are no longer in equilibrium with its hydrologic regime
- Enlargement of channels
- Highly modified stream channels (from human activity)
- Upstream channel erosion that contributes greater sediment load to the stream
- Reduced dry weather flow to the stream
- Decreased wetland perimeter of the stream
- Degraded in-stream habitat structure

- Reduced large woody debris
- Increased stream crossings and potential fish barriers
- Fragmented riparian forests that are narrower and less diverse
- Decline in water quality
- Increased summer stream temperatures
- Reduced aquatic diversity

The hydraulic changes associated with urbanization have often been addressed with channelization and channel modification as a solution. Evaluating impacts from urbanization on a watershed scale and planning solutions on the same watershed scale can often prevent the transference of upstream problems to downstream locations. There are a variety of management activities that can reduce the impacts associated with urban development. When these urban impacts are reduced, additional hydromodification impacts, such as channelization and channel modification or streambank and shoreline erosion effects, may be reduced. Changes in urban development practices that result in reduced sediment in runoff can enhance reservoir quality and lessen the need for management activities to reduce nonpoint source impacts associated with the operation of dams.¹

Agricultural Drainage

Some activities, including channelization and channel modification, that take place within a watershed, can lead to unintended adverse effects on watershed hydrology. Even when the intended effect of the watershed activity is to reduce pollution or erosion for an area within a watershed, the impact of the project to the entire watershed's hydrology should be evaluated. Since hydrology is important to the detachment, transport, and delivery of pollutants, better understanding of these effects can lead to reduction of nonpoint source pollution problems (USEPA, 2003b).

One example of an activity that has been shown to provide localized nonpoint source benefits, but can negatively affect the hydrology of a watershed, is an agricultural drainage system. The main purpose of agricultural drainage is to provide a root environment suitable for plant growth, but it can also be used as a means of reducing erosion and improving water quality. Despite the localized positive effects of drainage, when drainage water is poor in quality or contains elevated levels of pollutants, adverse impacts may occur downstream within a watershed. Concentrations of salts, nutrients, and other crop-related chemicals, such as fertilizers and pesticides can damage downstream aquatic ecosystems. Many agricultural drainage systems include drain tiles placed strategically throughout a field to create a network of gravity fed drains. The drain tiles empty into a collection pipe that drains to a waterbody nearby. With the drain system in place and operating, water will leave the affected area quicker and at one or more focused points. Water from the drainage system may erode the banks of unlined surface drains, contribute to flashier runoff events in the receiving water or downstream, and increase the load of sediment in drainage water (USEPA, 2003b).

¹ For additional information on hydrologic problems associated with urbanization and management practices that address urbanization issues, refer to *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (USEPA, 2005d): <http://www.epa.gov/owow/nps/urbanmm/index.html>.

Because of these adverse effects, drainage planners should analyze effluents from these systems for nutrients and pesticides to determine possible downstream impacts. Care should also be taken with drainage water so that it does not negatively alter the hydrology of a watershed (FAO, 1997). The degree to which management activities, such as agricultural drainage systems, affect watersheds beyond their intended purpose should be evaluated. In some cases, a thorough assessment and thoughtful discussion with key stakeholders is enough to evaluate the potential impacts of a project on hydrology. However, in many instances, some form of modeling is probably needed to integrate various small and large impacts of watershed activities. For more information on agricultural drainage and management practices related to agricultural drainage, refer to *National Management Measures for the Control of Nonpoint Pollution from Agriculture* (USEPA, 2003b).²

Shorelines

A shoreline is defined as the areas between low tide and the highest land affected by storm waves. The shape and position of shorelines are constantly being modified by the processes of erosion and deposition by waves and currents (Tarbuck and Lutgens, 2005). NOAA's Coastal Services Center defines shoreline as "the line of contact between the land and a body of water. On Coast and Geodetic Survey nautical charts and surveys the shoreline approximates the mean high water line" (NOAA, 2006).

The shoreline can be divided into three major areas:

- 1) *Coast*—the land inland from the base of the sea cliff (produced by the undercutting of bedrock at sea level by wave erosion).
- 2) *Beach (shore)*—the area between low tide level and dunes, sea cliff, or permanent vegetation. This can be separated into backshore and foreshore.
- 3) *Offshore*—the area continuously underwater, which can include a wave build platform.

Shoreline Processes

As mentioned above, the shape and position of shorelines are constantly modified by erosion and deposition by waves and currents. Waves are agents of erosion, transportation, and deposition of sediments. Waves can be formed by the following processes (Tulane University, n.d.; University of Alabama, 2006):

- *Wind-generated waves*—formed by shear stress between water and air when the wind speed is higher than about 3 km/hr. Factors that determine the size of waves are wind velocity, wind duration, and fetch (distance the wind blows over a continuous water surface).
- *Displacement of water*—can be caused by activities such as landslides.
- *Displacement of seafloor*—can be caused by faulting and volcanic eruptions.

² Available online at: <http://www.epa.gov/owow/nps/agmm/index.html>.

Wave refraction occurs where wave fronts approach the shore at an angle, but are bent to become more parallel to the shoreline by frictional drag on the bottom. The part of the wave in shallow water slows down because of bottom friction, while the part in the deep water keeps moving at regular speed. Wave refraction causes headland erosion and deposition in bays (Tulane University, n.d.; University of Alabama, 2006).

Nearshore currents occur in the area from the shoreline to beyond the surf zone and consist of (Tulane University, n.d.; University of Alabama, 2006):

- *Longshore currents* move parallel to shore in the same general direction as the approaching waves. They are produced by the movement of oblique waves in the surf zone, and can transport large amounts of sediment by longshore drift.
- *Rip currents* are strong, narrow currents of surface water that flow seaward through the surf into deeper water. The currents develop in areas with lower wave heights (deeper water depths).

Deposition and Erosion

Wave erosion and rivers that open into the ocean or lakes can deposit sediment, transported by longshore currents, developing the following depositional features (Tulane University, n.d.; University of Alabama, 2006):

- 1) *Beaches*—Any strip of sediment that extends from the low-water line inland to a cliff or zone of permanent vegetation, which is built of material eroded by waves from the headlands, and material brought down by rivers that carry the products of weathering and erosion from the land masses. Beaches are protected from the full force of water waves but are continually modified by wave and current erosion.
- 2) *Spits*—A narrow ridge or embankment of sediment forming a finger-like projection from the shore into the open ocean. Spits typically develop when the sediment being carried by long-shore drift is deposited where water becomes deeper, such as the mouth of a bay.
- 3) *Baymouth bars*—Sand bars that form as a result of longshore drift and completely cross a bay, sealing it off from the open ocean.
- 4) *Tombolo*—A ridge of sand that connects two islands or an island with the mainland, formed as the result of wave refraction around an island.
- 5) *Tidal inlet*—A break in a spit or baymouth bar, caused by storm erosion, through which tidal currents rush.
- 6) *Barrier islands*—Low offshore ridges of sediments that parallel the coast and are separated from the mainland by lagoons.

Wave erosion can also wear away land features, causing the following types of features to form (Tulane University, n.d.; University of Alabama, 2006):

- 1) *Sea cliffs*—formed by storm wave erosion which undercuts higher land, making it susceptible to mass wasting. Sea cliffs can erode very slowly or rapidly, depending on the rock type and wave energy.
- 2) *Wave-cut terrace or platform*—produced by the retreat of a sea cliff which slopes gently in a seaward direction.

- 3) *Headlands*—occur due to the seaward projections of shore eroded by wave refraction.

Common Natural and Anthropogenic Causes of Coastal Land Loss

Primary causes of coastal land loss, including both natural and anthropogenic causes, are summarized in Table 2.1 below (USGS, 2004).

Table 2.1 Common Causes of Coastal Land Loss

Agent	Examples
Natural Causes	
Erosion	Waves and currents, storms, landslides
Sediment reduction	Climate change, stream avulsion, source depletion
Submergence	Land subsidence, sea-level rise
Wetland deterioration	Herbivory, freezes, fires, saltwater intrusion
Anthropogenic Causes	
Transportation	Boat wakes, altered water circulation
Coastal construction	Sediment deprivation (bluff retention), coastal structures (jetties, groins, seawalls)
River modification	Control and diversion (dams, levees)
Fluid extraction	Water, oil, gas, sulfur
Climate alteration	Global warming and ocean expansion, increased frequency and intensity of storms
Excavation	Dredging (canals, pipelines, drainage), mineral extraction (sand, shell, heavy mines)
Wetland destruction	Pollutant discharge, traffic, failed reclamation, burning

Shorelines can also experience increased rates of erosion as a result of hydromodification activities. Alterations to the sediment sources for beaches can result in erosion. The sediment supplied to beaches or shorelines can come from a variety of sources including rivers, cliff and rocky foreshores, the seafloor, or windblown dune materials. Beaches and shorelines at the mouth of a river are often replenished by fluvial sediment. When changes within the river system decrease the sediment load carried to the mouth of the river, the result may be decreased sediment supplies to the shoreline or beach. While the design of each hydromodification system determines the impacts that will ensue, streambank and shoreline erosion is a common consequence.

Impacts Associated with Dams

The physical presence and operation of dams can result in changes in water quality and quantity. Some of the water quality impacts include changes in erosion, sedimentation, temperature, dissolved gases, and water chemistry. Examples of biological and habitat impacts, which may result from a combination of physical and chemical changes, include loss of habitat for existing or desirable fish, amphibian, and invertebrate species; changes from cold water to warm water species (or inversely, changes from warm water to cold water species); blockage of fish passage; or loss of spawning or necessary habitat.

The impacts associated with dams occur above (upstream) and below (downstream) the dam. Upstream impacts occur primarily in the impoundment/reservoir created by the presence and operation of the dam. The area and depth of the impoundment will determine the extent and

complexity of the upstream and downstream impacts. For example, small, low-head dams with little impounded areas will exhibit different impacts than large storage dams. Sedimentation and fish passage issues at the smaller, low-head dam contrast with sedimentation, temperature, fish passage, flow regulation, and water quality issues that may be associated with the larger storage dam. The existence of the dam and associated impoundment results in much different water quality interactions than those associated with the preexisting naturally flowing streams or rivers.

Above dams, activities within the watershed can have significant impacts on water quality within impoundments and in releases from dams to downstream areas. Watershed activities, such as agricultural land use, unpaved rural roads, forestry harvesting, or urbanization can lead to changes in runoff water quantity and quality. Agricultural and forestry practices that lead to sediment-laden runoff may result in increased sediment accumulation within an impoundment. Chemicals (e.g., pesticides and nutrients) that are applied on agricultural crops can be carried with sediment in runoff. Increases in urbanization that result in more impervious areas within a watershed often result in dramatic changes in the quantity and timing of runoff flows. These external sources are integrated by the dam and may result in short- and long-term water quality changes within an impoundment and dam releases.

Water quality in reservoirs and releases from dams are closely linked and scrutinized to uses of the water. Often, there are multiple potential users who may have differing quality needs and perceptions. Management of dams includes balancing dam operations, watershed activities, reservoirs, and downstream water and uses. Dortch (1997) provides an excellent assessment on water quality considerations in *Reservoir Management*. Dortch (1997) notes the following about water quality:

- *Temperature* regulates biotic growth rates and life stages and defines fishery habitat (warm, cool, and cold water).
- *Oxygen* sustains aquatic life.
- *Turbidity* affects light transmission and clarity.
- *Nutrient enrichment* is linked to primary productivity (algal growth) and can cause oxygen depletion, poor taste, and odor problems.
- *Organic chemicals and metals* may be toxic and accumulate when bound to sediment that settles in the reservoir.
- *Total dissolved solids* may be problematic for water supplies and other users.
- *Total suspended solids* are a transport mechanism for nutrients and contaminants. Solids may settle in reservoirs and displace water storage volume.
- *pH* regulates many chemical reactions.
- *Dissolved iron, manganese, and sulfide* can accumulate in reservoir hypolimnions that are depleted of oxygen and can cause water quality problems in the reservoir and release water.
- *Pathogens* include bacteria, viruses, and protozoa that can cause public health problems.

Water uses include water supply, flood control, hydropower, navigation, fish and wildlife conservation, and recreation (Dortch, 1997). All of the uses have varying water quality requirements, ranging from almost none for flood control to high quality needs for water supply, fish and wildlife conservation, and recreation.

Dams act as a barrier to the flow of water, as well as to materials being transported by the water. This can impact water quality both in the impoundment/reservoir created by the dam and downstream of the dam. Alteration to the chemical and physical qualities of water held behind a dam is often a function of the retention time of a reservoir or the amount of time the water is retained and not able to flow downstream. Water held in a small basin behind a run-of-river dam may undergo minimal alteration. In contrast, water stored for months or even years behind a large storage dam can undergo drastic changes that impact the downstream environment when released (McCully, 2001). A storage dam that impounds a large reservoir of water for an extended time period will cause more extensive impacts to the physical and chemical characteristics of the water than a smaller dam with little storage capacity.

Several physical changes are possible when dams are introduced into a stream or river, including changes in:

- Instream water velocities
- Timing and duration of flows
- Flow rates
- Sediment transport capacities
- Turbidity
- Temperature
- Dissolved gasses

Similarly, changes to water chemistry are possible as a result of damming rivers and streams, including changes to:

- Nutrients
- Alkalinity and pH
- Metals and other toxic pollutants
- Organic matter

The nature and severity of impacts will depend on the location in the river or stream, in relation to the upstream or downstream side of the dam, the storage time of the impounded water, and the operational practices at the dam. Many of the above impacts are also interrelated. For example, changes in temperature may result in changes in dissolved oxygen levels or changes to pH may result in changes to nutrient dynamics and the solubility of metals.

Water Quality in the Impoundment/Reservoir

As water approaches a dam from upstream, the stream velocity slows down considerably, creating a lake-like environment. The water builds up behind the dam and forms a basin (i.e., impoundment, reservoir) that is deeper than the previous stream flow. The height of the dam and its operational characteristics will determine how much water is stored and the length of storage. The extent of impacted stream area above the dam is influenced by the size of the dam installed, how much water is released, and how often water is released. For example, a small run-of-the-river dam constructed to divert water for a millrace will have minimal storage capacity and may only store water for several hours or less. In this case, instream water velocities may decrease,

but with minimal upstream and downstream effects. Thus, the length of upstream channel that is impacted should be relatively small.

In contrast, a large flood control dam and reservoir may have many months of storage and severely alter instream velocities for long distances upstream. Topography surrounding the original stream channel and storage volume will be important parameters determining the length of stream channel affected by the large dam. The volume and frequency of discharges from the dam will also determine how much of the upstream channel is impacted with lower instream velocities as a result of the dam.

Dams act as a physical barrier to the movement of suspended sediments and nutrients downstream (McCully, 2001). When the stream flow behind a dam slows, the sediment carrying capacity of the water decreases and the suspended sediment settles onto the reservoir bottom. Any organic compounds, nutrients, and metals that are absorbed to the sediment also settle and can accumulate on the reservoir bottom.

Turbidity associated with sediment varies, depending on particle sizes of the sediment and the length of time water is held. Longer holding times in the reservoir could result in periodic episodes of high turbidity from upstream storm events that carry sediment rich stormwater, especially if the sediment is predominantly very fine clay particles. Turbidity may also increase as a result of planktonic algal growth in a reservoir.

The increased depth of the water in reservoirs reduces the volume of water exposed to solar radiation and ambient temperatures. Once the flow is controlled by the operation of the dam and the reservoir is mixed primarily by winds, temperature variations can become established within the reservoir. This can cause thermal stratification where, compared to the bottom, surface layers become warmer in the summer and cooler in the winter. In deeper reservoirs, the deepest layers may become nearly constant in temperature throughout the year. Changes in temperature can impact water quality and biological processes in the reservoir, including changes in predominant fish species. Since the density of water is a function of water temperature, thermal stratification creates density gradients within the impoundment. As density gradients become established, exchanges of gases and chemicals between gradients decrease. In a stratified impoundment well aerated surface waters often do not mix with hypolimnetic water and result in poorly oxygenated strata below the surface waters.

Nutrient transport is affected by dams, which can trap the nutrients in the impoundment/reservoir. When nutrients accumulate, the reservoir might become nutrient enriched (i.e., eutrophic). In warmer seasons, concentrated nutrients in waters exposed to light can promote growth of algae and other aquatic plants, which consume nutrients and release oxygen (during photosynthesis) and carbon dioxide (during respiration). When algae and other aquatic plants complete their growth cycles, they die and sink to the bottom of an impoundment. Microbial decomposition of the highly organic dead plant materials may release nutrients back into the water column. Microbial decomposition of the dead plant and algal cells in aerobic conditions consumes oxygen, which can rapidly deplete bottom waters of dissolved oxygen. Under anaerobic conditions, microbial decomposition can produce potentially toxic concentrations of gases, such as hydrogen sulfide.

The operational characteristics of a dam will influence nutrient levels in water releases. For example, water released from the surface of an impoundment may contain seasonally varying forms and levels of nutrients. During periods of algal growth, releases may contain lower levels of dissolved nutrients and higher levels of organic materials (algae) containing nutrients. When algal growth is not occurring, releases may contain higher levels of dissolved nutrients.

Anaerobic (oxygen-depleted) environments, which are typical of deeper waters in reservoirs, can result in several changes to the water chemistry. For example, as by-products of organic matter decomposition in an anaerobic environment, ammonia and hydrogen sulfide concentrations can become elevated (Freeman, 1977; Pozo et al., 1997). Highly acidic (or highly alkaline) waters tend to convert insoluble metal sulfides to soluble forms, which can increase the concentration of toxic metals in reservoir waters (FISRWG, 1998).

Changes in one water quality parameter in a reservoir/impoundment can impact other water quality parameters, causing a cycling of events to occur. For example, increased sedimentation (from internal or external sources) can lead to more organic matter remaining in the reservoir, resulting in more biochemical oxygen demand, potentially lower dissolved oxygen, and other changes to water chemistry, such as pH and metal solubility. Periodic growth and then die-off of aquatic plants and algae creates additional variable cycling of organic matter in the reservoir. The following references may provide additional detail on the complex water quality changes that can occur in impoundments and reservoirs:

- Holdren, C., W. Jones, and J. Taggart. 2001. *Managing Lakes and Reservoirs*. North American Lake Management Society and Terrene Institute, in cooperation with the Office of Water, Assessment and Watershed Protection Division, U.S. Environmental Protection Agency, Madison, WI.
- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.
- U.S. Army Corps of Engineers. N.d. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Corps of Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

Water Quality Downstream of a Dam

The physical and chemical changes that occur to the water quality in an impoundment/reservoir have a large impact on the water released downstream of a dam. As previously stated, the presence of a dam can alter water velocities above and below the dam. In smaller dams with little storage capacity, velocities may slow locally and recover to an undisturbed state shortly downstream from the dam. When dams store large volumes of water in a reservoir, the operation of the dam will have a major impact on the downstream velocities and flows. Unless the dam is operated to consistently release water at flows near pre-dam levels, downstream areas will have flows and velocities that are directly related to the volume of water released in a given time period. The downstream flow characteristics will become a function of the operation of the dam, including the timing and duration of releases, the depth of reservoir intakes, and other physical characteristics of the release.

On the Columbia River, research found that prior to construction of dams, average water temperatures fluctuated more diurnally with cooler nighttime temperatures as compared with the existing average water temperatures. With the dams in place, cooler weather tends to cool the free flowing river but have little effect on the average temperature of the impounded river (USEPA, 2003c).

When dams trap sediment upstream, water released from the dam may be starved of sediment and have an increase in erosive capacity. Along with trapping sediment, nutrients may also be trapped above the dam. When the nutrients are trapped and unavailable, sensitive downstream habitats and populations may be affected.

Whether the water is released from the surface or bottom of the reservoir can have a large impact on the characteristics of the water. The impacts of water outflows below a dam are an outcome of the seasonal temperature fluctuations and the outflow positioning. Seasonal temperature profiles in reservoirs are highly variable and dependent upon a complex set of factors including tributary inflow, basin morphometry, drawdown and discharge characteristics, and the degree of stratification (Wetzel, 2001). Compared to natural temperatures, in summer elevated temperatures in surface water releases can increase downstream river temperatures, whereas bottom water releases can be expected to decrease water temperatures. The opposite effect is generally observed in the winter due to changes in the water temperature gradient (USACE, 1999 in Fidler and Oliver, 2001).

Suspended Sediment and Reduced Discharge

Whether the release water originates from the surface or the bottom of the reservoir, the suspended sediment has typically settled out of the water column and thus the water released from behind the dam is usually relatively free from sediment (Simons and Senturk, 1992). This sediment-free water can easily pick up and carry a sediment load and have an increase in erosive capacity. Because of the rock lined channels of bank stabilization and navigation projects that usually occur below these reservoirs, the only place that the clear waters can find the sediments they need is in the streambed or navigation channel. This leads to channel deepening or bed degradation, which in turn lowers water tables and drains floodplain channels and backwaters (Rasmussen, 1999). Streambed and streambanks will continue to erode until an equilibrium suspended sediment load is established. Without sediment from upstream sources, downstream streambanks, streambeds, sandbars, and beaches can erode away more quickly (FISRWG, 1998).

A reduction in the discharge and sediment load generally results in degradation of the channel close to the dam and sedimentation downstream due to the increased supply from the erosion near the dam. Degradation may eventually migrate downstream, but is typically most dramatic the first few years following construction of the dam (Biedenharn et al., 1997). In addition, the physical impact of the discharge will depend, in part, on the channel substrate. A fine silt and sand channel bottom may experience more extensive erosion than a bed rock or cobble substrate.

Lower flow conditions below a dam within a tidally influenced basin can lead to changes in water chemistry. The impact of lower freshwater flow into estuaries was extensively studied in San Francisco Bay. Nichols et al. (1986) provide a detailed history of changes to freshwater inflows to San Francisco Bay. They also provide a summary of the impacts, which include the ecological and water quality effects. A study comparing an unregulated river and a dam regulated river found a significant difference in the water quality chemistry, including an analysis of levels of sodium, potassium, calcium, phosphorus, electrical conductivity, and pH in the middle and lower reaches of the rivers. These differences were attributed to increased tidal influence as a result of lower outflow volumes of fresh water from the dam (Colonnello, 2001). In addition, a decreased discharge from the dam and increased tidal influence can prolong the flushing time or the time it takes water to move through a system. This causes the nutrients and pollutants within the water to remain concentrated in areas below the dam near an estuary.

Biological and Habitat Impacts

The presence of a dam may cause physical and chemical changes to the water quality. These, in turn, can have an impact on the entire biological community including fish, macroinvertebrates, algae, and streamside vegetation. Impacts to the biological community differ upstream and downstream of a dam. Dams may disrupt spawning, increase mortalities from predation, change instream and riparian habitat, and alter plant and benthic communities. Resulting fish populations after dam construction may thrive and become well established, but could be very different than populations prior to installing the dam. For example, upstream of the dam, a fish population may change from a cold-water salmonid fishery to one that is dominated by cool- or warm-water species. A once thriving native trout population may become a largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*) dominated system. Similarly, downstream conditions may also change. In southern states, streams that once supported catfish and other tolerant warm-water species may now be able to support a trout fishery because of cold-water releases from bottom waters behind a dam. Although the trout fishery may be viewed as positive by some, the displaced native warmwater species may not be perceived as beneficial.

Dams prevent the movement of organisms throughout the river system (Morita and Yamamoto, 2002). Researchers found that fragmenting habitat by damming a river caused the disappearance of a fish species in several upstream locations and further disappearances were predicted (Morita and Yamamoto, 2002). Recently, some individual cases involving movement of invasive, non-native aquatic species note the presence of dams as a positive factor. In these cases, dams have blocked the movement of potentially harmful invasive species.

Flood control and hydropower projects influence a river's hydrograph. For example, in some regions normal river hydrographs featured a rise in water level elevation corresponding to spring

rains. Other geographic areas had stream hydrographs corresponding to snowmelt in the mountains, or fall rainfall. Native species evolved under these scenarios and used such water level rises to trigger spawning movements onto floodplains and in the case of birds, for nesting on islands. Additionally, the stream water level fluctuations were important in providing feeding and resting areas for spring and fall waterfowl migrations. Under managed scenarios for commercial navigation, river water level elevations are raised in the spring and held stable throughout the navigation season, virtually eliminating the triggering mechanisms native species used to reproduce and complete their life cycles. Because of this, many native riverine species often fail to spawn or nest, and are becoming increasingly threatened (Rasmussen, 1999). Additionally, stabilization of periodic flooding has also lead to the loss of ephemeral wetlands and may lead to the accumulation of sediments in nearshore areas, thus negatively affecting fish spawning areas (NRC, 1992).

Dams may lead to increased predation of fish in several ways. A dam may cause populations of fish to concentrate on the upstream and downstream sides, which might lead to the likelihood of increased predation. Changes in the habitat adjacent to a dam can make conditions more suitable to predation. Dams may cause the migration process to be delayed, which also leads to increased predation (Larinier, 2000).

The physical and chemical changes to water released from a dam, including reduced streamflow variability and decreased sediment loads, may also impact benthic communities. Increased water clarity and reduced streamflow variability just below a dam may result in a greater abundance of periphyton or other plants as compared with other locations in the river (Stanford and Ward, 1996). A slowed stream flow velocity with decreased turbulence can also encourage the growth of phytoplankton blooms (Décamps et al., 1988). In contrast, the operation of some hydroelectric dams with large, sudden releases of water may scour the bottom of the downstream channel to the extent that there is a nearly complete removal of the plant communities (Allan, 1995).

Impacts Associated with Dam Removal

Removing a dam affects the flow of water, movement of sediment and chemical constituents, and the overall channel morphology (Academy of Natural Sciences, 2002) on the waterway where the dam was located. The impacts of removing a dam differ for the upstream and downstream sections of a waterway.

Changes in the biological community following the removal of a dam are difficult to generalize, as they are highly site specific and can vary in recovery time from a few months to

The effects of river damming were evaluated in a study comparing a regulated river to an unregulated river in the Green River Basin in Colorado. Prior to installation of the dam in Green River in 1962, Green River and the Yampa River were similar in riparian vegetation and fluvial processes. Comparison of the now regulated Green River and the free-flowing Yampa River found distinctive vegetation differences between the parks that surround the rivers. The channel form of Green River has undergone three stages of morphologic change that have transformed the historically deep river into a shallow braided channel. The Yampa River has remained relatively unchanged. The land surrounding the Green River now consists of marshes with anaerobic soil that supports wetland species and terraces with desert species adapted to xeric soil conditions. The meandering Yampa River has maintained its original surroundings. Its frequently flooded bars and high floodplains provide a wide range of habitats for succession of riparian vegetation (Merritt and Cooper, 2000).

more than a decade. With the removal of a dam, there are changes in the vegetative community surrounding the stream channel and changes in the biological community within the stream itself.

Physical Changes: Upstream Impacts

The removal of a dam allows the water formerly held behind the dam to flow and will likely cause the extent of the impoundment area or reservoir area to decrease. As a dam is removed and the water recedes, sediment is scoured from the bottom and a stream channel returns sometimes to its pre-dam pathway and sometimes to a newly carved channel. As a channel is formed, areas that were formerly beneath the impoundment area become exposed. This can leave large areas of unvegetated and unstable land exposed, which makes these areas likely to undergo erosion and gully development, increasing the sediment load to the stream.

In time, vegetation will stabilize the newly formed stream banks, reducing erosion and allowing sediment transport levels to return to natural levels. The nutrient and metal constituents associated with the sediment will also return to natural levels. As the newly established channel-like flow develops and the stagnant and deep conditions are removed, the natural temperature and oxygen levels will be reestablished.

Physical Changes: Downstream Impacts

Once the physical barrier of the dam is removed, a river can flow unrestricted. As the channel is reformed, the water discharge volume and the stream channel can reach equilibrium. As a result, a more natural stream flow rate is maintained.

With the removal of a dam, the fate of the trapped sediments is of concern because flooding and downstream pollution problems can result. On a short-term time scale, the redistribution of the fine silt and sand sediments that accumulated behind the dam wall may cause an increase in turbidity and water quality problems. In addition, the impact can be greater if the sediments contain toxic pollutants, such as metals or bioaccumulative compounds such as mercury or PCBs. On a short-term time scale, the redistribution of the fine silt and sand sediments increases the turbidity and can damage spawning grounds, water quality, habitat, and food quality (American Rivers, 2002a). Suspended sediment loads can have a negative impact on a biological community and reach lethal levels during dam removal if preventive measures are not implemented (Doyle et al., 2000).

After a dam is removed and the sediment that has been trapped behind the dam is redistributed, natural sediment transport levels return. As a result, the constituents typically sorbed to sediment, including nutrients and metals, are no longer found localized in excess. Normal sediment transport levels typically result in a river bottom with a higher percentage of rocky substrate. Gravel and cobblestones located below the sediment may be exposed or may be transported from upstream locations as the flow rate of the river increases. This unrestricted flow and transport of sediment and gravel may also play a key role in restoring sediments to downstream locations and coastal beaches (USDOI, 1995). The removal of a dam and the return of natural flow rates should also help to restore a river's natural water temperature range and oxygen levels.

Short-term chemical changes to the water quality, including the possibility of supersaturation of nitrogen gas directly following the removal of a dam, can cause aquatic animals to experience

adverse conditions. This can include gas bubble disease, in which nitrogen bubbles form in the blood and tissues and block capillaries by embolism (Colt, 1984; Soderberg, 1995). Adverse effects can be seen when the dissolved nitrogen level reaches 102% and at 105% widespread fish mortalities are possible (Dryden Aqua, 2002). Supersaturation was an issue in the 1992 removal of Little Goose Dam on the Snake River (American Rivers, 2002a). If a reservoir is drawn down slowly, the severity of the impact of supersaturation on aquatic organisms can be lessened (American Rivers, 2002a).

Biological Changes: Upstream Impacts

Following the removal of a dam, a return to the normal temperature range, flow rates, and oxygen levels supports the return of native aquatic vegetation species. Still water impoundments support aquatic vegetation that is free floating or that does not need to be strongly rooted, while free-flowing systems support plants that are rooted strongly enough to resist being uprooted by the water current (WRM, 2000).

As the water recedes and the formerly impounded area becomes exposed, vegetation can begin to colonize the area. Sometimes, the exposed area may be colonized by invasive plant species, which are able to remain for several years and prevent other vegetation from becoming established.

The removal of a dam and the subsequent drawdown of water from the impoundment area can affect the wetlands formerly bordering the impoundment area. As the dam is removed, the water table typically begins to drop. The elevation of the wetlands and the extent of the water table drawdown determine whether the wetland areas dry up and what changes will occur in the wetland species composition. Wetlands that develop alongside the newly carved channel are likely to be different than the wetlands formerly bordering the impoundment area in terms of plant and animal species composition.

The biological changes associated with the removal of a dam can be described in phases, as the waterbody makes the transition from reservoir to river. This includes a pattern of relatively rapid recovery for invertebrates or short-lived taxa, followed by a second phase of slower recovery for fish or longer-lived taxa if the dam removal is not an especially large or disruptive event. Overall, the initial impacts, such as colonization by invasive species, typically determine the ecological recovery that follows (Doyle et al., 2000).

Dam removal can allow for improved fish passage and unrestricted fish movement that provides access to spawning habitat upstream. For coastal rivers, the removal of a dam may enable tidal waters to reach upper portions of the stream that were formerly cut off by the dam, creating a spawning environment preferred by certain fish species. Access to upstream sections is particularly beneficial for some anadromous fish that live most of their lives in saltwater and swim upstream toward freshwater to spawn (Massachusetts River Restore Program, 2002).

A dam can also act as a barrier between upstream and downstream fish populations. If a downstream community of fish is an invasive fish species the dam serves as a physical barrier to separate the invasives from the upstream community (American Rivers, 2002a). Thus, the removal of the dam can negatively impact the ecosystem if it allows for the movement of a

population of an invasive species that was previously prevented from traveling to a section of the stream because of the presence of a dam.

Biological Changes: Downstream Impacts

Downstream of the former dam, wetlands are likely to reappear along side the stream channel where they occurred prior to the construction of the dam (WRM, 2000). Revegetation of river beds and banks typically occurs within one growing season, following removal of a dam (Massachusetts River Restore Program, 2002).

Recolonization of the stream banks by vegetation affects the biological community within the stream by providing shade, reducing water temperatures, and supplying a source of woody debris and organic matter to the stream.

As streamside vegetation begins to recover and suitable habitat is restored, fish begin to return. Changes in flow as a result of dam removal lead to the development of side channels and ponds that provide habitat for fish and wildlife. Increased flow rates also allow for the transport of larger debris, including gravel and logs, which create spawning beds and pool and riffle habitat (River Recovery, 2001). In addition, the rocky substrate environment, which is typically exposed as a result of dam removal, provides habitat for aquatic insects and spawning fish. In the long term, the return to natural stream temperatures, oxygen levels, and flow rates all contribute to the reestablishment of a healthy aquatic and riparian ecosystem.

Chapter 3: Channelization and Channel Modification



Channelization and channel modification describe river and stream channel engineering undertaken for flood control, navigation, drainage improvement, and reduction of channel migration potential. Activities that fall into this category include straightening, widening, deepening, or relocating existing stream channels and clearing or snagging operations. These forms of hydromodification typically result in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths. Channelization and channel modification also refer to the excavation of borrow pits, canals, underwater mining, or other practices that change the depth, width, or location of waterways, or embayments within waterways.

Channelization and channel modification activities can play a critical role in nonpoint source pollution by increasing the downstream delivery of pollutants and sediment that enter the water. Some channelization and channel modification activities can also cause higher flows, which increase the risk of downstream flooding.

Channelization and channel modification can:

- Disturb stream equilibrium
- Disrupt riffle and pool habitats
- Create changes in stream velocities
- Eliminate the function of floods to control channel-forming properties
- Alter the base level of a stream (streambed elevation)
- Increase erosion and sediment load

Many of these impacts are related. For example, straightening a stream channel can increase stream velocities and destroy downstream pool and riffle habitats. As a result of less structure in the stream to retard velocities, downstream velocities may continue to increase and lead to more frequent and severe erosion.

Management Measure 1: Physical and Chemical Characteristics of Channelized or Modified Surface Waters

Management Measure 1

- 1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters.
- 2) Plan and design channelization and channel modification to reduce undesirable impacts.
- 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

This management measure applies to proposed channelization or channel modification projects and is intended to occur concurrently with the implementation of Management Measure 2 (Instream and Riparian Habitat Restoration). The intent of the management measure is for project planners to consider potential changes in surface water characteristics when evaluating proposed channelization or channel modification projects. Also, for existing modified channels, the planning process can include consideration of opportunities to improve the surface water characteristics necessary to support desired fish and wildlife.

The purpose of the management measure is to ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of proposed work. For existing projects, this management measure can be used to ensure the operation and maintenance program uses any opportunities available to improve the physical and chemical characteristics of the surface waters.

Changes created by channelization and channel modification activities are problematic if they unexpectedly alter environmental parameters to levels outside normal or desired ranges. The physical and chemical characteristics of surface waters that may be influenced by channelization and channel modification include sedimentation, turbidity, salinity, temperature, nutrients, dissolved oxygen, oxygen demand, and contaminants. Changes in natural sediment supplies, reduced freshwater availability, and accelerated delivery of pollutants are examples of the types of changes that can be associated with channelization and channel modification.

Published case studies of existing channelization and channel modification projects describe alterations to physical and chemical characteristics of surface waters (Burch et al., 1984; Petersen, 1990; Reiser et al., 1985; Roy and Messier, 1989; Sandheinrich and Atchison, 1986; Sherwood et al., 1990; Shields et al., 1995). Frequently, the post-project conditions are intolerable to desirable fish and wildlife. The literature also describes instream benefits for fish and wildlife that can result from careful planning of channelization and channel modification

projects (Bowie, 1981; Los Angeles River Watershed, 1973; Sandheinrich and Atchison, 1986; Shields et al., 1990; Swanson et al., 1987; USACE, 1989).

Management Practices for Management Measure 1

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of nonpoint source (NPS) pollution related to instream changes and watershed development.
2. *Operation and maintenance programs that apply* a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream changes or watershed development.

Planning and Evaluation

In planning-level evaluations of proposed hydromodification projects, it is critical to understand that the surface water quality and ecological impact of the proposed project will be driven primarily by the alteration of physical transport processes. In addition, it is critical to realize that the most important environmental consequences of many hydromodification projects will occur over a long-term time scale of years to decades.

Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans, and new development plans.

The key element in the selection and application of models for the evaluation of the environmental consequences of hydromodification projects is the use of appropriate models to adequately characterize circulation and physical transport processes. Appropriate surface water quality and ecosystem models (e.g., salinity, sediment, cultural eutrophication, oxygen, bacteria, fisheries, etc.) are then selected for linkage with the transport model to evaluate the environmental impact of the proposed hydromodification project. There are several sophisticated two-dimensional (2D) and three-dimensional (3D) time-variable hydrodynamic models available for environmental assessments of hydromodification projects. Two-dimensional depth or laterally averaged hydrodynamic models can be routinely applied to assist with environmental assessments of beneficial and adverse effects on surface water quality by knowledgeable teams of physical scientists and engineers (Hamilton, 1990). Three-dimensional hydrodynamic models are also beginning to be more widely applied for large-scale environmental assessments of aquatic ecosystems (e.g., EPA/USACE-WES Chesapeake Bay 3D hydrodynamic and surface water quality model).

Refer to Chapter 8 for a list of some models available for studying the effects of channelization and channel modification activities (Table 8.1). Chapter 8 also provides examples of channelization and channel modification activities and associated models that can be used in the planning process.

Operation and Maintenance Programs

Several management practices can be implemented to avoid or mitigate the physical and chemical impacts generated by hydromodification projects. Many of these practices have been engineered and used for several decades, not only to mitigate human-induced impacts but also to rehabilitate hydrologic systems degraded by natural processes.

In cases where existing channelization or channel modification projects can be changed to enhance instream or streamside characteristics, several practices can be included as a part of regular operation and maintenance programs. New channelization and channel modification projects that are predicted to cause unavoidable physical or chemical changes in surface waters can also use one or more practices to mitigate the undesirable changes. Some of the types of practices include:

- Grade control structures
- Levees, setback levees, and floodwalls
- Noneroding roadways
- Streambank protection and instream sediment load controls
- Vegetative cover

Grade Control Structures

There are two basic types of grade control structures. The first type can be referred to as a bed control structure because it is designed to provide a hard point in the streambed that is capable of resisting the erosive forces of the degradational zone. The second type can be referred to as a hydraulic control structure because it is designed to function by reducing the energy slope along the degradational zone to the point where the stream is no longer capable of scouring the bed. The distinction between the operating processes of these two types is important whenever grade control structures are considered (Biedenharn and Hubbard, 2001).

Design considerations for siting of grade control structures include determining the type, location, and spacing of structures along the stream, along with the elevation and dimensions of structures. Siting grade control structures can be considered a simple optimization of hydraulics and economics. However, these factors alone are usually not sufficient to define optimum siting conditions. Hydraulic considerations must be integrated with a host of other factors that can vary from site to site to determine the final structure plan. Some of the more important factors to be considered when siting grade control structures are discussed more specifically in the U.S. Army Corps of Engineers' *Design Consideration for Siting Grade Control Structures* (Biedenharn and Hubbard, 2001).

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to be reclaimed (CASQA, 2003).

In some cases, grade control structures can be designed to allow fish passage. However, some grade control structures can obstruct fish passage. In many instances, fish passage is a primary consideration and may lead engineers to select several small fish passable structures in lieu of

one or more high drops that would restrict fish passage. In some cases, particularly when drop heights are small, fish are able to migrate upstream past a structure during high flows. In situations where structures are impassable, and where the migration of fish is an important concern, openings, fish ladders, or other passageways must be incorporated into the structure's design (Biedenharn and Hubbard, 2001). Fish passage practices are described in Chapter 7.

A type of grade control structure is a check dam. Refer to Chapter 7 for more information about this practice.

Levees, Setback Levees, and Floodwalls

Levees are embankments or shaped mounds constructed for flood control or hurricane protection (USACE, 1981). Setback levees and floodwalls are longitudinal structures used to reduce flooding and minimize sedimentation problems associated with fluvial systems. These practices can be used to reduce the impacts of channelization and channel modification. A more detailed discussion of levees, setback levees, and floodwalls is available in Chapter 7.

Noneroding Roadways

Disturbances along the streambank that result from activities associated with operation and maintenance of channelization projects can lead to additional nonpoint source pollution impacts to the stream. An example of human-induced activities is erosion associated with roadways. Rural road construction, streamside vehicle operation, and stream crossings usually result in significant soil disturbance and create a high potential for increased erosion processes and sediment transport to adjacent streams and surface waters. Erosion during and after construction of roadways can contribute large amounts of sediment and silt to runoff waters, which can deteriorate water quality and lead to fish kills and other ecological problems (USEPA, 1995b).

Road construction involves activities such as clearing of existing native vegetation along the road right-of-way; excavating and filling the roadbed to the desired grade; installation of culverts and other drainage systems; and installation, compaction, and surfacing of the roadbed.

Although most erosion from roadways occurs during the first few years after construction, significant impacts may result from maintenance operations using heavy equipment, especially when the road is located adjacent to a waterbody. In addition, improper construction and lack of maintenance may increase erosion processes and the risk for road failure. To minimize erosion and prevent sedimentation impacts on nearby waterbodies during construction and operation periods, streamside roadway management needs to combine proper design for site-specific conditions with appropriate maintenance practices. A discussion of how roadways can impact fish habitat and passage is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a).

More information about suggested practices to consider during design, construction, operation and maintenance, and general maintenance of noneroding roadways, is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a). This EPA guidance document also provides some suggested permanent control BMPs that may be used to prevent erosion from roadways. Additional information about noneroding roadways is available in Chapter 7 and the Resources section of this document.

Streambank Protection and Instream Sediment Load Controls

Streambank erosion is a natural process that occurs in fluvial systems. Streambank erosion can also be induced or exaggerated as a result of human activities. There are several factors within a watershed that can contribute to human induced streambank erosion. Accelerated streambank erosion related to human activity can typically be attributed to three major causes including channel modifications, reservoir construction, and land use changes (Henderson, 1986). When possible, streambank erosion problems should be addressed in the context of the entire watershed, using a systems approach that considers and accommodates natural stream processes. Approaches to addressing streambank erosion problems associated with channelization and channel modification activities can involve efforts to identify and address all significant contributing factors in addition to treating the immediate symptom, bank erosion.

In general, the design of streambank protection may involve the use of several techniques and materials. Nonstructural or programmatic management practices for the prevention of streambank failures include:

- Protection of existing vegetation along streambanks
- Careful use or regulation of irrigation near streambanks, such as rerouting of overbank drainage
- Minimization of loads on top of streambanks (such as prevention of building within a defined distance from the streambed)

Several structural practices are used to protect or rehabilitate eroded banks. These practices are usually implemented in combination to provide stability of the stream system, and they can be grouped into direct and indirect methods. Direct methods place protecting material in contact with the bank to shield it from erosion. Indirect methods function by deflecting channel flows away from the bank or by reducing the flow velocities to nonerosive levels (Henderson, 1986; Henderson and Shields, 1984). Indirect bank protection requires less bank grading and tree and snag removal. However, some structural methods like stone toe protection, as discussed below, can be placed with minimal disturbance to existing slope, habitat, and vegetation.

Feasibility of the practices at a site depends on the engineering design of the structure, availability of the protecting material, extent of the bank erosion, and specific site conditions such as the flow velocity, channel depth, inundation characteristics, and geotechnical characteristics of the bank. The use of vegetation alone or in combination with other structural practices, when appropriate, could further reduce the engineering and maintenance efforts.

Vegetation can be considered with respect to site-specific characteristics. When vegetation is combined with low cost building materials or engineered structures, numerous techniques can be created for streambank erosion control. It is important to consider the assets and limitations when planning to use planted vegetation for streambank protection. Advantages of vegetation include the following (Allen and Leech, 1997):

- Reinforces soil (increases bank stability).
- Increases resistance to flow and reduces flow velocities (from exposed stalks), causing the flow to dissipate energy against the plant (rather than the soil).

- Intercepts water.
- Enhances water infiltration.
- Depletes soil water by uptake and transpiration.
- Acts as a buffer against the abrasive effect of transported materials.
- Induces sediment deposition (from close-growing vegetation).
- Reduces costs, in some cases, when compared to most structural methods.
- Improves conditions for fisheries and wildlife.
- Improves water quality.
- Protects cultural/archeological resources.

Limits of vegetation include failure to grow; being subject to undermining; being uprooted by wind, water, and the freezing and thawing of ice; ingestion by wildlife or livestock; and maintenance requirements. Chapter 3 of *Bioengineering for Streambank Erosion Control* discusses plant acquisition, handling, and timing of planting (Allen and Leech, 1997).

Streambanks can be protected or restored either by increasing resistance of the bank to erosion or by decreasing the energy of the water at the point of contact with the bank, for example by deflecting or interrupting flows (Henderson, 1986). Instream sediment can be controlled by using several structural, vegetative, or bioengineered practices, depending on the management objective and the source of sediment. Streambank protection and channel stabilization practices, including various types of revetments, grade control structures, and flow restrictors, have been effective in controlling sediment production caused by streambank erosion. Designs should match the protection capability of the treatment to the erosion potential of each stream zone. For example, riprap may be needed at the toe of a slope to protect it from undercutting combined with tree revetments to deflect flows and provide protection for live stakings that will develop permanent support. The growing body of research indicates management techniques that emulate nature and work with natural stream processes are more successful and economical.

Significant amounts of instream sediment deposition can be prevented by controlling bank erosion processes and streambed degradation. Channel stabilization structures can also be designed to trap sediment and decrease the sediment delivery to desired areas by altering the transport capacity of the stream and creating sediment storage areas. In regulated streams, alteration of the natural streamflow, particularly the damping of peak flows caused by surface water regulation and diversion projects, can increase streambed sediment deposits by impairing the stream's transport capacity and its natural flushing power. Sediment deposits and reduced flow alter the channel morphology and stability, the flow area, the channel alignment and sinuosity, and the riffle and pool sequence. Such alterations have direct impacts on the aquatic habitat and the fish populations in the altered streams (Reiser et al., 1985).

Vegetative Cover

Streambank protection using vegetation is a commonly used practice, particularly in areas of low water velocities. Vegetative cover, also used in combination with structural practices, is often relatively easy to establish and maintain, and is visually attractive (USACE, 1983). Emergent vegetation provides two levels of protection. First, the root system helps hold soil together and increases overall bank stability by forming a binding network. Second, the exposed stalks, stems, branches, and foliage provide resistance to streamflow, causing the flow to lose part of its energy

by deforming the plants rather than by removing the soil particles. Above the waterline, vegetation protects against rainfall impact on the banks and reduces the velocity of the overland flow during storm events.

Vegetative controls are not suitable for all sites, especially those sites with severe erosion due to high flow rates or channel velocities. Refer to the Washington State Department of Transportation's (WSDOT's) *Hydraulics Manual*, Chapter 4¹ for information on calculating flow rates or channel velocities. Stabilization measures should only be implemented after a careful evaluation of the stream and the surrounding area. A knowledgeable fluvial geomorphologist may be helpful with this evaluation. In addition, plant species should be selected with care; native plant species should be used whenever possible. Appropriate species can be determined by consulting horticulturalists and botanists for plant selection assistance. The USDA-Forest Service guide, *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*² provides a list of plants for soil bioengineering associated systems. The International Erosion Control Association (IECA)³ publishes a products and services directory listing sources of plant material and professional assistance.

In addition to bank stabilization, vegetation can also offer pollutant filtering capacity. Pollutants and sediment transported by overland flow may be partly removed as a result of a combination of processes including reduction in flow pattern and transport capacity, settling and deposition of particulates, and eventual nutrient uptake by plants.

Summary of Physical and Chemical Practices

All of the following practices can be used to address the effects of channelization and channel modification activities on the physical and chemical characteristics of a waterbody:

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Noneroding roadways
- Return walls

¹ <http://www.wsdot.wa.gov/eesc/design/hydraulics/Manual/Rev3Publications/Chapter%204.pdf>

² <http://www.fs.fed.us/publications/soil-bio-guide>

³ <http://ieca.org>

- Revetments
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Management Measure 2: Instream and Riparian Habitat Restoration

Management Measure 2

- 1) Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat.
- 2) Plan and design channelization and channel modification to reduce undesirable impacts.
- 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to restore instream and riparian habitat in those channels.

Implementation of this management measure is intended to occur concurrently with the implementation of the Management Measure for Physical and Chemical Characteristics of Channelized or Modified Surface Waters (see previous management measure discussion). This management measure pertains to surface waters where channelization and channel modification have altered or have the potential to alter instream and riparian habitat, such that historically present plants, fish, or wildlife are adversely affected. This management measure is intended to apply to any proposed channelization or channel modification project to determine changes in instream and riparian habitat and to existing modified channels to evaluate possible improvements to instream and riparian habitat. The purpose of this management measure is to correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects.

Management Practices for Management Measure 2

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. Ensuring the involvement and participation of all partners is a place to start on any restoration project. Determining the extent of the restoration activity can help identify potential partners and other interested stakeholders. Each stakeholder may bring a certain expertise, historical information and data, and possibly funding to a project. Development of a stream corridor restoration plan can help organize the group, set goals for implementation of management practices, secure funding or other types of support, and facilitate the sharing of ideas and accomplishments within the group and to others in the community. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of NPS pollution related to instream and riparian habitat changes and watershed development.

2. *Operation and maintenance* activities that restore habitat through the application of a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream and riparian habitat changes or watershed development.

Planning and Evaluation

Several tools can be used to evaluate the instream and riparian health of a stream system. These approaches include:

- Biological methods/models
- Temperature restoration practices
- Geomorphic assessment techniques
- Expert judgment and checklists

Biological Methods/Models

To assess the biological impacts of channelization, it is necessary to evaluate both physical and biological attributes of the stream system. Assessment studies should be performed before and after channel modification, with samples being collected upstream from, within, and downstream from the modified reach to allow characterization of baseline conditions. It also may be desirable to identify and sample a reference site within the same ecoregion as part of the rapid bioassessment procedures discussed below.

Use models/methodologies to evaluate the effects of proposed channelization and channel modification projects on instream and riparian habitat and to determine the effects after such projects are implemented.

There are a number of different methods that can be used to assess the biological impacts of channelization. Rapid Bioassessment Protocols (RBPs) were developed as inexpensive screening tools for determining whether a stream is supporting a designated aquatic life use (Barbour et al., 1999; Plafkin et al., 1989). One component of these protocols is an instream habitat assessment procedure that measures physical characteristics of the stream reach (Barbour and Stribling, 1991). An assessment of instream habitat quality based on 12 instream habitat parameters is performed in comparison to conditions at a “reference” site, which represents the “best attainable” instream habitat in nearby streams similar to the one being studied. The RBP habitat assessment procedure has been used in a number of locations across the United States. A small field crew of one or two persons typically can perform the procedure in approximately 20 minutes per sampling site.

Rapid Bioassessment Protocols (Barbour et al., 1999; Plafkin et al., 1989) were designed to be scientifically valid and cost-effective and to offer rapid return of results and assessments. Protocol III (RBP III) focuses on quantitative sampling of benthic macroinvertebrates in riffle/run habitats or on other submerged, fixed structures (e.g., boulders, logs, bridge abutments, etc.) where such riffles may not be available. The data collected are used to calculate various metrics pertaining to benthic community structure, community balance, and functional feeding groups. The metrics are assigned scores and compared to biological conditions as described by either an ecoregional reference database or reference sites chosen to represent the “best attainable” biological community in similarly sized streams. In conjunction with the instream

habitat quality assessment, an overall assessment of the biological and instream habitat quality at the site is derived. RBP III can be used to determine spatial and temporal differences in the modified stream reach. Application of RBP III requires a crew of two persons; field collections and lab processing require 4 to 7 hours per station and data analysis about 3 to 5 hours, totaling 7 to 12 hours per station. The RBP III has been extensively applied across the United States. More information about biological assessments is available from EPA's Biological Assessment Web site.⁴

Karr et al. (1986) describes an Index of Biological Integrity (IBI), which includes 12 metrics in three major categories of fish assemblage attributes: species composition, trophic composition, and fish abundance and condition. Data are collected at each site and compared to those collected at regional reference sites with relatively unimpacted biological conditions. A numerical rating is assigned to each metric based on its degree of agreement with expectations of biological condition provided by the reference sites. The sum of the metric ratings yields an overall score for the site. Application of the IBI requires a crew of two persons; field collections require 2 to 15 hours per station and data analysis about 1 to 2 hours, totaling 3 to 17 hours per station. The IBI, which was originally developed for Midwestern streams, can be readily adapted for use in other regions. It has been used in several states across the country to assess a wide range of impacts in streams and rivers.

Habitat Evaluation Procedures (HEPs) can be used to document the quality and quantity of available habitat, including aquatic habitat, for selected wildlife species. HEPs provide information for two general types of instream and riparian habitat comparisons:

- The relative value of different areas at the same point in time
- The relative value of the same area at future points in time

By combining the two types of comparisons, the impact of proposed or anticipated land and water use changes on instream and riparian habitat can be quantified (Ashley and Berger, 1997).

Additional information about the assessment methods discussed above, as well as other methods for assessing biological impacts is available in Table 8.2 of Chapter 8.

Temperature Restoration Practices

Channelization and channel modification activities can greatly impact stream temperature. All other factors remaining unchanged, when a channel is narrowed, the water depth increases and the surface area exposed to solar radiation and ambient temperature decreases. This can decrease water temperature. When a channel is widened, the opposite occurs; shallower depths and increased temperatures occur. Temperature may also be increased from increased turbidity because the sediment particles absorb heat. It is important to model how temperature will change in a stream, as a result of channelization and channel modification activities, to determine what other changes and impacts might occur in the stream.

⁴ <http://www.epa.gov/owow/monitoring/bioassess.html>

Stream temperature has been widely studied, and heat transfer is one of the better-understood processes in natural watershed systems. Most available approaches use energy balance formulations based on the physical processes of heat transfer to describe and predict changes in stream temperature.

More information about temperature restoration models and practices is provided in Chapter 8 (Modeling).

Geomorphic Assessment Techniques

Fluvial geomorphology is the study of stream form and function. Geomorphic assessment focuses on qualitative and quantitative observations of stream form. It provides a “moment-in-time” characterization of the existing morphology of the stream. In addition, geomorphic assessment includes a stability component. Stability assessments place the stream in the context of past, present, and anticipated adjustment processes. Geomorphic assessments can be useful in predicting changes that could be created by channelization and channel modification activities.

Stream classification is a technique that is used to show the relationship between streams and their watersheds. There are several techniques for stream classification, all of which have advantages and limitations. Advantages of geomorphic assessment include (adapted from FISRWG, 1998):

- Promotes communication.
- Enables extrapolation of data collected on a few streams to a number of channels over a broader geographical area.
- Helps the restoration practitioner consider the landscape context and determine expected ranges of parameters.
- Enables practitioners to interpret the channel-forming or dominant processes active at the site.
- Uses reference reaches as the desired outcome of restoration.
- Provides an important cross-check to verify if the selected design values are within a reasonable range.

Limitations of geomorphic assessment include (adapted from FISRWG, 1998):

- Determination of bankfull or channel-forming flow depth may be difficult or inaccurate.
- The dynamic condition of the stream is not indicated in stream classification systems.
- River response to a perturbation or restoration action is normally not determined by classifying it alone.
- Biological health is not directly determined.
- Classifying a stream should not be used alone to determine the type, location, and purpose of restoration activities.

Schumm (1960) identified straight, meandering, and braided channels and related both channel pattern and stability to modes of sediment transport. Schumm recognized that stable straight and meandering channels have mostly suspended sediment loads and cohesive bank materials, as opposed to unstable braided streams characterized by mostly bedload sediment transport and

wide sandy channels with noncohesive bank materials. Meandering mixed-load channels are found at an intermediate condition (FISRWG, 1998).

Montgomery and Buffington (1993) proposed a classification system similar to Schumm for alluvial, colluvial, and bedrock streams in the Pacific Northwest. This system addresses channel response to sediment inputs throughout the drainage network. Six classes of alluvial channels were identified—cascade, step-pool, plane-bed, riffle-pool, regime, and braided. The stream types are differentiated based on channel response to sediment inputs. For example, steeper channels maintain their morphology while transporting sediment. Streams with lower gradients make more morphological adjustments with increased sediment loads (FISRWG, 1998).

A conceptual model of channel evolution in response to channelization (CEM-channel evolution model) was developed by Simon and Hupp (1986, 1987), Hupp and Simon (1986, 1991), and Simon (1989a, 1989b). The model identifies six geomorphic stages of channel response and was developed and extensively applied to predict empirical stream channel changes following large-scale channelization projects in western Tennessee. Data required for model application include bed elevation and gradient, channel top-width, and channel length before, during, and after modification. Gauging station data can be used to evaluate changes through time of the stage-discharge relationship and bed-level trends. Riparian vegetation is dated to provide ages of various geomorphic surfaces and thereby to deduce the temporal stability of a reach.

A component of Simon and Hupp's (1986, 1987) channel response model is the identification of specific groups of woody plants associated with each of the six geomorphic channel response stages. Their findings for western Tennessee streams suggest that the site preference or avoidance patterns of selected tree species allow their use as indicators of specific bank conditions. This method might require calibration for specific regions of the United States to account for differences in riparian zone plant communities, but it would allow simple vegetative reconnaissance of an area to be used for a preliminary estimate of stream recovery stage (Simon and Hupp, 1987).

Restoring or maintaining streams to a stable form through natural channel design requires detailed information about surface water hydrology and the interactions between rainfall and overland flow or runoff. The Rosgen classification system, developed by David L. Rosgen, and presented in *Applied River Morphology*, is currently the most comprehensive and widely used quantitative assessment method for geomorphology. It represents a compilation of much of the early work in applied fluvial geomorphology and relies largely on the identification of bankfull field indicators. The bankfull discharge is the flow event that fills a stable alluvial channel up to the elevation of the active floodplain (Rosgen, 1996). Dunne and Leopold (1978) first developed hydraulic geometry relationships for the bankfull stage, also called regional curves. Most river engineers and hydrologists work under the assumption that the bankfull discharge is equivalent to the channel forming or dominant discharge in geomorphic classification and in analog and empirical design methods. The bankfull discharge is the only discharge that can be easily identified in the field using physical indicators; therefore it is one of the most commonly used in natural channel design. Additional information about Rosgen is available in Chapter 7.

Moment-in-time stream classifications provide insights into the existing form of the stream and can help to define design parameters and understand potential modifications in reference to existing conditions. Stream classification offers a way to categorize streams based on channel morphology. The older classification systems were largely qualitative descriptions of stream features and landforms and were difficult to apply universally. In 1994, Rosgen published *A Classification of Natural Rivers*. Because of its relative simplicity and usefulness in stream restoration, the Rosgen classification system has become popular among hydrologists, engineers, geomorphologists, and biologists working to restore the biological function and stability of degraded streams. The classification consists of 41 major stream types for which stream channel stability and stream bank erosion potential can be assessed. From the assessment, structures for in-stream and stream bank restoration or modification can be selected. When planning stream restoration projects, it is important for the planning team to use a multidisciplinary approach that includes consideration of hydraulics, hydrology, water quality, geomorphological processes, and biological interactions to develop and implement a successful restoration. Chapter 7 provides additional detailed information on stream classification practices.

In site selection, geomorphic assessments can determine if a site is unstable and in need of some form of restoration activity. During design, geomorphic assessments can be used in combination with hydrologic, hydraulic, and/or sediment transport analyses to define design elements such as channel slope and hydraulic geometry.

Sediment transport analysis in rivers and streams is used to approximate the amount of sediment being moved by flow event scenarios and to determine where it will be deposited. Modeling the sediment transport capacity of a channel and its predicted sediment deposition patterns are important for assessing existing and proposed channel design projects to estimate potential project impacts. Sediment transport analysis is also useful for determining restoration opportunities in existing channelization and channel modification projects. Sediment transport analysis is often coupled with stable channel analyses methods to refine channel geometries to estimate optimal scour and deposition characteristics (Schulte et al., 2000). A good source of technical information on sediment transport analysis can be found in *River Engineering for Highway Encroachments* (FHWA, 2001).

Sediment transport analysis has been used in many projects, including:

- Channel design projects (Schulte et al., 2000)
- Stream restoration design (Copeland et al., 2001; Shields et al., 2003)
- Flood control projects (USACE, 1994)
- Highway projects that include stream crossings (FHWA, 2001)

In the design of new channelization projects and analysis of existing projects, channels are typically evaluated using channel stability methods and then the analysis is refined using sediment transport models. Sediment transport analysis is used to refine geometry so that scour and deposition are minimized. It is also used to determine the optimum grade control structure elevation and placement and to find the excavation depths in depositional zones to minimize operational costs for maintaining the channel geometry (Schulte et al., 2000).

The methods and techniques used to accomplish a geomorphic assessment should be project-specific and conducted by personnel trained in applied fluvial geomorphology. Geomorphic assessment of streams has evolved rapidly over the past 10–15 years. Initial methodologies tended to be tailored for localized applications and required extensive data collection and validation. Rosgen's methodology provides a more universal approach to stream classification that represents trade-offs between data collection needs and ease of application for many different stream types. The challenge to this type of modeling and assessment has always been to balance the complexity and need for extensive data collection with ease of use and reliability of the results. The key is that the geomorphic assessment must provide a fundamental understanding of the linkage between river form and process. The assessment should provide insight into where the stream has been, is now, and in what direction it is moving. It should also place the project reach in the context of broader system wide adjustment processes. Geomorphic assessment can be used to select sites for restoration and develop designs.

Expert Judgment and Checklists

Approaches using expert judgment and checklists developed based on experience acquired in previous projects and case studies may be very helpful in integrating environmental goals into project development. The USACE used this concept of incorporating environmental goals into project design (Shields and Schaefer, 1990) in the development of a computer-based system for the environmental design of waterways (ENDOW). The ENDOW system is composed of three modules: a streambank protection module, a flood control channel module, and a streamside levee module. The three modules require the definition of the pertinent environmental goals to be considered in the identification of design features. Depending on the environmental goals selected for each module, ENDOW will display a list of comments or cautions about anticipated impacts and other precautions to be taken into account in the design.

Another example of using expert judgment is the Proper Functioning Condition (PFC) technique. PFC was developed by the Bureau of Land Management (BLM) to rapidly assess whether a stream riparian area is functioning properly in terms of hydrology, landform/soils, channel characteristics, and vegetation. The assessment is performed by an interdisciplinary team and involves completing a checklist evaluating 17 factors concerning hydrology, vegetation, and erosional/depositional characteristics. The PFC field technique is not quantitative, but with adequate training, results are reproducible to a high degree (FISRWG, 1998).

Operation and Maintenance Activities

Implementation practices for instream and riparian habitat restoration in planned or existing modified channels are consistent with those management practices for physical and chemical characteristics of channelized or modified surface waters. To prevent future impacts to instream or riparian habitat or to solve current problems caused by channelization or channel modification projects, include one or more of the following practices to mitigate the undesirable changes:

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattresses
- Bulkheads and seawalls

- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Establish and protect stream buffers
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Marsh creation and restoration
- Noneroding roadways
- Return walls
- Revetments
- Riparian improvements
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Operation and maintenance programs should weigh the benefits of including practices such as those for mitigating any current or future impairments to instream or riparian habitat. Additional information about these practices can be found in Chapter 7. Also, Fischenich and Allen (2000) provide a comprehensive summary of practices that can be evaluated for use in operation and maintenance programs.

Chapter 4: Dams



Dams are a common form of hydromodification. The National Research Council estimated that there were more than 2.5 million dams in the United States in 1992 (NRC, 1992). These dams range in size from berms across small streams that create farm ponds to large concrete structures across major rivers for hydropower and flood control. The USACE estimates (of these 2.5 million dams in the United States) about 79,000 are large enough to be included in the National Inventory of Dams (USACE, n.d.b.).¹

Dams generally were built to store and provide water for mechanical power generation (e.g., waterwheels to mill grain), industrial cooling, hydroelectric power generation, agricultural irrigation, municipal water supplies for human consumption, and impoundment-based recreation (e.g., boating and sport fishing). Dams are also used for flood control and to maintain channel depths for barge transportation.

Dams can be associated with a number of effects, including changes to hydrology, water quality, habitat, and river morphology. Lakes and reservoirs integrate many processes that take place in their contributing watersheds, including processes that contribute energy (heat), sediment, nutrients, and toxic substances. Human activities, such as agricultural and urban land use, contribute to contaminant and sediment loads to reservoirs. The presence and operation of dams can determine the fate of these pollutants in a reservoir or impoundment and potentially downstream as water is released from the dam. For example, the presence of a dam may lead to sediment accumulation in a reservoir. However, there are management practices that can mitigate this integrative effect of a reservoir. One example is selective withdrawals, which are an operational technique that can be used by some dam operators to provide water quality and temperatures necessary to sustain downstream fish populations.

When dams are built, depending on size and design, they may alter the river system structure, causing it to change from a river (flowing) to lake (static) and back to a river (flowing) system.

¹ With the National Dam Inspection Act (P.L. 92-367) of 1972, Congress authorized the U.S. Army Corps of Engineers (USACE) to inventory U.S. dams. The Water Resources Development Act of 1986 (P.L. 99-662) authorized USACE to maintain and periodically publish an updated National Inventory of Dams (NID).

Dams with large storage capacities will, by design, retain water longer than those with little storage. This can change system flow patterns, which can affect water quality and habitat upstream and downstream of the dam. Most effects from dams are observed downstream. Table 4.1 provides a description of several common types of dams.

Table 4.1 Types of Dams (FEMA, 2003)

Type of Dam	Description
Ambursen dam	A buttress dam in which the upstream part is a relatively thin, flat slab usually made of reinforced concrete
Arch dam	A concrete, masonry, or timber dam with the alignment curved upstream so as to transmit the major part of the water load to the abutments
Buttress dam	A dam consisting of a watertight part supported at intervals on the downstream side by a series of buttresses
Crib dam	A gravity dam built up of boxes, crossed timbers, or gabions, filled with earth or rock
Diversion dam	A dam built to divert water from a waterway or stream into a different watercourse
Double curvature arch dam	An arch dam that is curved both vertically and horizontally
Earth dam	An embankment dam in which more than 50% of the total volume is formed of compacted earth layers that are generally smaller than 3-inch size
Embankment dam	Any dam constructed of excavated natural materials, such as both earthfill and rockfill dams, or of industrial waste materials, such as a tailings dam
Gravity dam	A dam constructed of concrete and/or masonry, which relies on its weight and internal strength for stability
Hollow gravity dam	A dam constructed of concrete and/or masonry on the outside but having a hollow interior and relying on its weight for stability
Hydraulic fill dam	An earth dam constructed of materials, often dredged, which are conveyed and placed by suspension in flowing water
Industrial waste dam	An embankment dam, usually built in stages, to create storage for the disposal of waste products from an industrial process
Masonry dam	Any dam constructed mainly of stone, brick, or concrete blocks pointed with mortar
Mine tailings dam (or tailings dam)	An industrial waste dam in which the waste materials come from mining operations or mineral processing
Multiple arch dam	A buttress dam comprised of a series of arches for the upstream face
Overflow dam	A dam designed to be overtopped
Regulating dam (or afterbay dam)	A dam impounding a reservoir from which water is released to regulate the flow downstream
Rock-fill dam	An embankment dam in which more than 50% of the total volume is comprised of compacted or dumped cobbles, boulders, rock fragments, or quarried rock generally larger than 3-inch size
Roller compacted concrete dam	A concrete gravity dam constructed by the use of a dry mix concrete transported by conventional construction equipment and compacted by rolling, usually with vibratory rollers
Rubble dam	A stone masonry dam in which the stones are unshaped or uncoursed
Saddle dam (or dike)	A subsidiary dam of any type constructed across a saddle or low point on the perimeter of a reservoir

Siting, construction, operation, maintenance, and removal of dams can lead to nonpoint source (NPS) effects. For example, siting of dams can result in inundation of wetlands, riparian areas, and fastland in areas upstream of the dam. During construction or maintenance, erosion and soil loss occurs. Proper siting and design help prevent erosion prone areas from being developed. For dams actively controlled by human operators, dam operation and the amount of water released can affect downstream areas when flood waters necessary to deliver sediment are restricted, or when controlled releases from dams change the timing, quantity, or quality of downstream flow. While removal of dams can lead to physical and biological impacts, such as temporary increased turbidity from redistribution of sediment previously stored behind the dam or displacement of warm-water species that prefer lake-like conditions, dam removal has many biological and habitat benefits, such as allowing for easier fish movement and a return of natural stream temperatures and dissolved oxygen. Sometimes, however, dams limit passage of undesirable invasive species. Therefore, a comprehensive evaluation of the benefits and limitations resulting from the presence of a dam should be completed when evaluating operation and maintenance procedures, as well as options for removal. A more detailed discussion of water quality, biological, habitat, physical, and chemical changes from dam removal is provided in Chapter 2.

One opportunity to evaluate and address the NPS impacts of some larger dams that are used for hydropower occurs during the licensing/relicensing process. The Federal Power Act (FPA) requires all nonfederal hydropower projects located on navigable waters to be licensed. The FPA (16 U.S.C. 791-828c) was originally enacted as the Federal Water Power Act in 1920 and was made part of the FPA in 1935. The Federal Energy Regulatory Commission (FERC) is the independent regulatory agency within the Department of Energy that has exclusive authority, under the FPA, to license such projects. The hydropower dam relicensing process offers an opportunity to assess the balance between natural resources and the generation of electricity and to address some areas that are determined to be problematic. Stakeholders, including dam owners and operators, local governments, environmental groups, and the public, often have different interests to be balanced. Through the FPA and the relicensing process, these varied interests can be evaluated and a balanced outcome can be derived. In conjunction with FPA licensing requirements, states and authorized tribes certify that discharges (including those that originate from dams) meet water quality standards under section 401 of the Clean Water Act (CWA).

The FPA also requires relicensing to be conducted in light of recent laws and regulations that are in effect at the time of renewal. As regulations related to hydropower dams change, it is possible that many dams that were previously licensed and are up for relicensing may no longer be in compliance with current regulatory standards. For example, many dams were built prior to the CWA, which includes regulatory requirements for protecting and maintaining designated uses (such as protecting desired aquatic life or maintaining bacterial water quality that is protective of human health for all recreational activities). Other regulatory requirements that may be evaluated during relicensing include protections for wetlands, aquatic habitat, and endangered species.²

² Additional information about FERC and hydropower licensing/relicensing is available at <http://www.ferc.gov>.

Management Measure 3: Erosion and Sediment Control for the Construction of New Dams and Maintenance of Existing Dams

Management Measure 3

- 1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.
- 2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

The purpose of this management measure is to prevent sediment from entering surface waters during the construction or maintenance of dams. This management measure emphasizes the importance of minimizing sediment loss to surface waters during both dam construction and maintenance. It is essential that proper erosion and sediment control practices be used to protect surface water quality because of the high potential for sediment loss directly to surface waters. Sediment and erosion control practices can be borrowed from other applications, such as urban development and construction activities.

Two broad performance goals constitute this management measure: minimizing erosion and maximizing the retention of sediment onsite. These performance goals allow for site-specific flexibility in specifying practices appropriate for local conditions. Regular inspections of a dam are valuable opportunities for dam owners to identify erosion problems and implement sediment controls to protect the integrity of the dam. Since the number of new dam construction projects is relatively small compared to the number of existing dams, operation and maintenance activities offer significantly more opportunities to prevent NPS problems associated with erosion and sediment control.

Dam owners are encouraged to establish a program of regular safety inspection of the dam's infrastructure and dam maintenance. Safety inspection of a dam is a program of regular visual inspection using simple equipment and techniques. These inspections are often an economical means of ensuring the long-term safety and survival of a dam structure. By regularly monitoring the condition and performance of the dam and its surroundings, adequate warning of potentially unsafe conditions will enable timely maintenance. Being able to recognize the signs of potential problems and failure, as well as what to do and whom to contact, is vital. Partial or total failure of a dam may cause extensive damage to downstream areas, including loss of life, property damage, and impacts to wetlands, riparian areas, stream channels, and other ecologically important lands, for which the owner may be held liable. There are also potentially expensive repair costs and lost income that may result from failures or poorly maintained dam structures.

The primary areas of dam structural failure are:

- Loss of clay soils used in berms and other earthen structures
- Seepage and leakage at the base or along pipes
- Erosion, including wave action, stock damage and spillways
- Cracking and movement of structural components
- Defects in associated structures
- Vegetation, including catchment protection and weed control

Operation and maintenance should be applied to small, as well as large dams. Many owners of small dams, like those on farm ponds, should regularly inspect their dams for maintenance needs. Local NRCS staff can provide technical assistance to small dam owners for operation and maintenance activities.³

Regular operation and maintenance efforts can lead to some dams being in need of repairs and/or upgrades. Designs for repairs and upgrades can involve replacing reinforced concrete risers and impact basins, replacing rusted out corrugated metal pipe principal spillways, raising the top of the dams, widening the auxiliary spillways, and removing sediment from the flood pools. Examples of project costs for these types of maintenance activities reported in Ohio have ranged from \$175,000 on a small dam to \$775,000 on the largest dam (Brate, 2004).

At the state and local levels, this measure can be incorporated into existing erosion and sediment control (ESC) programs. This measure can also be effectively implemented as part of safety inspection requirements. Erosion and sediment control is also intended to be part of a comprehensive land use or watershed management program.

Management Practices for Management Measure 3

The management measure can be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the management measure for erosion and sediment control for construction of new dams and maintenance of existing dams.

Erosion Control Practices

Successful control of erosion and sedimentation from construction and maintenance activities can involve a system of management practices that targets each stage of the erosion process. The most efficient approach involves minimizing the potential sources of sediment from the onset. This means limiting the extent and duration of land disturbance to the minimum needed, and protecting surfaces once they are exposed. The second stage of the management practice system involves controlling the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows. The third stage involves retaining sediment that is picked up on the project site through the use of sediment-capturing devices. On most sites

³ Contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app>) to access NRCS in your community.

successful erosion and sedimentation control requires a combination of structural and vegetative practices. All of these stages are better performed using advanced planning and good scheduling.

The timing of land disturbing activities and installation of erosion control measures must be coordinated to minimize water quality impacts. For large scale activities, the management practice system is typically installed in reverse order, starting with sediment capturing devices, followed by key runoff control measures and runoff conveyances, and then land clearing activities. Often, construction or maintenance activities that generate significant off-site sediment have failed to sequence activities in the proper order.

Erosion controls reduce the amount of sediment lost during dam construction and prevent sediment from entering surface waters. Erosion control is based on (1) minimizing the area and time of land disturbance and (2) quickly stabilizing disturbed soils to prevent erosion.

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than a single practice. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

The following practices have proven to be useful in controlling erosion and can be incorporated into ESC plans and used during dam construction as appropriate. These practices can be used during and after construction and throughout ongoing maintenance activities.

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Construct runoff intercepts
- Construction management
- Dormant post plantings
- Erosion and sediment control (ESC) plans
- Erosion control blankets
- Joint planting
- Live cribwalls
- Live fascines
- Live staking
- Locate potential land disturbing activities away from critical areas
- Mulching

- Noneroding roadways
- Phase construction
- Preserve onsite vegetation
- Retaining walls
- Revegetate
- Revetment
- Riparian improvements
- Riprap
- Rootwad revetments
- Scheduling projects
- Sediment fences
- Seeding
- Site fingerprinting
- Sodding
- Soil protection
- Surface roughening
- Training—erosion and sediment control
- Tree armoring, fencing, and retaining walls or tree walls
- Tree revetments
- Vegetated buffers
- Vegetated filter strips
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wildflower cover
- Wind erosion controls

A more detailed discussion of each of the above practices is provided in Chapter 7.

Runoff Control

To prevent the entry of sediment used during construction into surface waters, these precautionary steps should be followed:

- Identify areas with steep slopes, unstable soils, inadequate vegetation density, insufficient drainage, or other conditions that give rise to a high erosion potential.
- Identify measures to reduce runoff from such areas if disturbance of these areas cannot be avoided (Hynson et al., 1985).

Runoff diversions are structures that channel upslope runoff away from erosion source areas, divert sediment-laden runoff to appropriate traps or stable outlets, or capture runoff before it leaves the site, diverting it to locations where it can be used or released without erosion or flood damage. Diversions can be either temporary or permanent in nature.

Runoff control measures, mechanical sediment control measures, grassed filter strips, mulching, and/or sediment basins could be used to control runoff from the construction site. Scheduling

construction during drier seasons, exposing areas for only the time needed for completion of specific activities, and avoiding stream fording also help to reduce the amount of runoff created during construction.

The largest surface water pollution problem during construction is suspended sediment resulting from aggregate processing, excavation, and concrete work. Preventing the entry of these materials above and/or below a dam is always the preferable alternative because runoff due to these types of construction activities can add more sediment to a reservoir, harm aquatic life above and below the dam, or affect habitat in streams below a dam. Filtration and gravitational settling during detention are the main processes used to remove sediment from construction site runoff. Methods used to control runoff and associated sedimentation from construction sites include:

- Check dams
- Constructing runoff intercepts
- Locate potential land disturbing activities away from critical areas
- Preserve onsite vegetation
- Retaining walls
- Sediment basins/rock dams
- Sediment fences
- Sediment traps
- Vegetated buffers
- Vegetated filter strips

A more detailed discussion of each of the above practices is provided in Chapter 7.

Erosion and Sediment Control (ESC) Plans

ESC plans can be used to control erosion and sediment and incorporate such control in planning. Some states call for specific requirements to be included in state ESC plans. Table 4.2 provides examples of several state ESC plan requirements. Additional detail about ESC plans, including general objectives, and management techniques for ensure proper administration of plans, is available in Chapter 7.

Table 4.2 Examples of Erosion and Sediment Control Plan Requirements for Select States

Location	General Requirements for ESC Plan
Delaware	ESC plans required for sites over 5,000 ft ² . Temporary or permanent stabilization must occur within 14 days of disturbance.
Florida	ESC plans required on all sites that need a runoff management permit.
Georgia	ESC plan required for all land-disturbing activities.
Indiana	ESC plan required for sites over 5 acres.
Maine	ESC plans required for sites adjacent to a wetland or waterbody. Stabilization must occur at completion or if no construction activity is to occur for 7 days. If temporary stabilization is used, permanent stabilization must be implemented within 30 days.
Maryland	ESC plans required for sites over 5,000 ft ² or 100 yd ³ .
Michigan	ESC plans required for sites over 1 acre or within 500 ft of a waterbody. Permanent stabilization must occur within 15 days of final grading. Temporary stabilization is required within 30 days if construction ceases.

Location	General Requirements for ESC Plan
Minnesota	ESC plans required for land development over 1 acre.
New Jersey	ESC plans required for sites over 5,000 ft ² .
North Carolina	ESC plans required for sites over 1 acre. Controls must retain sediment on-site. Stabilization must occur within 30 days of completion of any phase of development.
Ohio	ESC plans required for sites over 5 acres. Permanent stabilization must occur within 7 days of final grading or when there is no construction activity for 45 days.
Oklahoma	ESC plans required for sites over 5 acres.
Pennsylvania	ESC plans required for all sites, but the state reviews only plans for sites over 25 acres. Permanent stabilization must occur as soon as possible after final grading. Temporary stabilization is required within 70 days if construction ceases for more than 30 days. Permanent stabilization is required if the site will be inactive for more than 1 year.
South Carolina	ESC plans required for all sites unless specifically exempted. Perimeter controls must be installed. Temporary or permanent stabilization is required for topsoil stockpiles and all other areas within 7 days of disturbance.
Virginia	For areas within the jurisdiction of the Chesapeake Bay Preservation Act, no more land is to be disturbed than necessary for the project. Indigenous vegetation must be preserved to the greatest extent possible.
Washington	ESC provisions are incorporated into the state runoff management plan.
Wisconsin	ESC plans required for all sites over 4,000 ft ³ . Temporary or permanent stabilization is required within 7 days.

(Adapted from Environmental Law Institute, 1998; USEPA, 1993)

Management Measure 4: Chemical and Pollutant Control at Dams

Management Measure 4

- 1) Limit application, generation, and migration of toxic substances.
- 2) Ensure the proper storage and disposal of toxic materials.
- 3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

This management measure is intended to be applied to the construction of new dams, as well as to construction activities associated with the maintenance of dams. This management measure addresses fuel and chemical spills associated with dam construction and operation and maintenance activities, as well as concrete washout and related construction activities. The purpose of this management measure is to prevent downstream contamination from pollutants associated with dam construction and maintenance activities.

Although suspended sediment is the major pollutant generated at a construction site, other pollutants that may be present around dams (especially during construction and operation and maintenance activities) include:

- Petroleum products—fuels and lubricants, specifically gasoline, diesel oil, kerosene, lubricating oils, grease, and asphalt
- Pesticides—insecticides, herbicides, fungicides, and rodenticides
- Fertilizers
- Construction chemicals—acids, soil additives, and concrete-curing compounds
- Wastewater—aggregate wash water, herbicide wash water, concrete-curing water, core-drilling wastewater, or clean-up water from concrete mixers
- Solid wastes—paper, wood, metal, rubber, plastic, and roofing materials
- Garbage
- Sanitary wastes
- Cement
- Lime

This management measure is important because most erosion and sediment control practices are ineffective at retaining soluble NPS pollutants on a construction site. Many of the NPS pollutants, other than suspended sediment, generated at a construction site are carried offsite in solution or attached to clay particles in runoff. Some metals (e.g., manganese, iron, and nickel) attach to larger sediment particles and usually can be retained onsite. Other metals (e.g., copper, cobalt, and chromium) attach to fine clay particles and have greater potential to be carried offsite. Insoluble pollutants (e.g., oils, petrochemicals, and asphalt) form a surface film on runoff water and can be easily washed away (USEPA, 1973; USEPA, 2002b; USEPA, 2005d). Factors that influence the pollution potential of construction chemicals include:

- The nature of the construction and maintenance activity
- The physical characteristics of the construction site
- The characteristics of the receiving water

Dam construction sites are particularly sensitive areas and have the potential to severely impact surface waters with runoff containing construction chemical pollutants. Because dams are located on rivers or streams, pollutants generated at these construction sites have a much shorter distance to travel before entering surface waters. Therefore, chemicals and other NPS pollutants generated at a dam construction site should be controlled.

Management Practices for Management Measure 4

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the control of chemicals and pollutants at dams. This includes dam construction as well as routine maintenance. Practices for controlling chemicals and pollutants include the following:

- Equipment runoff control
- Fuel and maintenance staging areas
- Locate potential land disturbing activities away from critical areas
- Pesticide and fertilizer management
- Pollutant runoff control
- Spill prevention and control program

A more detailed discussion of each of the above practices is provided in Chapter 7.

Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat

Management Measure 5

Develop and implement a program to manage the operation of dams that includes an assessment of:

- 1) Surface water quality and instream and riparian habitat and potential for improvement.
- 2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

This management measure is intended to be applied to dam operation, maintenance, and removal activities that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat.

The purpose of the management measure is to protect the quality of surface waters and aquatic habitat (including riparian habitat) in the portion of rivers and streams that are impacted by dams. Operation, maintenance, and dam removal activities can be assessed to determine opportunities for potential improvements in water quality and aquatic habitat. These activities, as well as actions within the watershed, that contribute NPS pollutants to an impoundment should be collectively and periodically evaluated to help identify opportunities for cost-effective change.

The recommended overall programmatic approach is to evaluate a set of practices that can be applied individually or in combination to protect and improve surface water quality and aquatic habitat in reservoirs, as well as in areas downstream of dams. Then, a program can be implemented using the most cost-effective operation, maintenance, and removal activities to protect and improve surface water quality and aquatic and riparian habitat.

The individual application of any particular technique, such as aeration, change in operational procedure, restoration of an aquatic or riparian habitat, or implementation of a watershed protection best management practice (BMP), will, by itself, probably not improve water quality to an acceptable level within the reservoir impoundment or in tailwaters flowing through downstream areas. The individual practices discussed in this portion of the guidance may have to be implemented in some combination in order to improve water quality in the impoundment or in tailwaters to acceptable levels.

Selection of the management measure for the protection of surface water and instream and riparian habitat was based on:

- The availability and demonstrated effectiveness of practices to improve water quality in impoundments and in tailwaters of dams.

- The level of improvement in water quality of impoundments and tailwaters that can be measured from implementation of engineering practices, operational procedures, watershed protection approaches, or aquatic or riparian habitat improvements.

Successful implementation of the management measure should generally involve the following categories of practices undertaken individually or in combination to improve water quality and aquatic and riparian habitat in reservoir impoundments and in tailwaters:

- Artificial destratification and hypolimnetic aeration of reservoirs with deep withdrawal points that do not have multilevel outlets to improve dissolved oxygen (DO) levels in the impoundment and to decrease levels of other types of NPS pollutants, such as manganese, iron, hydrogen sulfide, methane, ammonia, and phosphorus in reservoir releases.
- Aeration of reservoir releases, through turbine venting, injection of air into turbine releases, installation of reregulation weirs, use of selective withdrawal structures, or modification of other turbine start-up or pulsing procedures.
- Providing both minimum flows to enhance the establishment of desirable instream habitat and scouring flows as necessary to maintain instream habitat.
- Establishing adequate fish passage or alternative spawning ground and instream habitat for fish species.
- Improving watershed protection by installing and maintaining BMPs in the drainage area above the dam to remove phosphorus, suspended sediment, and organic matter and otherwise improve the quality of surface waters flowing into the impoundment.
- Removing dams, which are unsafe, unwanted, or obsolete, after careful consideration of alternatives.

Since the presence and operation of a dam have the potential to cause impacts, periodic assessments of reservoir water quality, watershed activities, and operational practices may provide valuable information for evaluating management strategies. The types and severity of the impacts can serve as an indicator of the frequency and magnitude of the assessments. There are a variety of assessment tools that are available to assist decision-makers in the evaluation of impacts associated with dams. Watershed-related impacts and management activities can be evaluated with a variety of models. EPA supports several models that may be useful for watershed assessments, such as BASINS.⁴

⁴ More information about EPA-supported watershed assessment tools can be found at <http://www.epa.gov/waterscience/wqm>.

Reservoir water quality can also be assessed with various models. Table 8-1 in this document provides a list of models that may be used to assess reservoir water quality. Also presented in Table 8-1 are models that could be used to evaluate downstream impacts of dams.⁵

Management Practices for Management Measure 5

The management measure generally can be implemented by applying one or more management practices appropriate to the source, location, and climate. Management practices that can be used to achieve the management measure include practices to improve water quality, restore or maintain aquatic and riparian habitat, and maintain fish passage, as well as possible removal of dams. The subsection on dam removal includes planning and evaluation considerations, descriptions of the removal process, permitting requests, sediment removal techniques, descriptions of changes associated with dam removal, and a discussion of potential biological impacts.

Practices for Improving Water Quality

Management practices for improving water quality associated with the operation and maintenance of dams can be categorized as:

- Watershed Protection Practices—activities to reduce NPS pollution that take place within the watershed surrounding a dam. Reduced NPS pollutant inputs, such as sediment or nutrients, can have a significant, positive effect on water quality within a reservoir and often in reservoir releases, as well.
- Practices for Aeration of Reservoir Water—aeration activities within the reservoir. The primary goal for aerating a large portion of reservoir water is to increase oxygen levels throughout the reservoir. Other water quality factors may also improve, including levels of dissolved metals and nutrients, destratification of the water column, and improved oxygen levels in releases.
- Practices for Aeration of Reservoir Releases—a variety of aeration techniques for improving water quality, specifically dissolved oxygen levels, are presented.

Improving water quality in impoundments and tailwaters often requires consideration of the interaction of several different factors. For example, achievement of desired DO levels at specific projects may require evaluation of several different technologies and management activities. The U.S. Army Corps of Engineers created a computer-modeling program, AERATE, that performs calculations to

Management practices to protect surface water quality and instream and riparian habitat are discussed in the following subsections:

- Improving Water Quality
 - Watershed Protection
 - Aeration of Reservoir Water
 - Aeration of Reservoir Releases
- Improving Aquatic Habitat
- Maintaining Fish Passage
- Dam Removal

⁵ The USACE Environmental Laboratory develops and supports several models, such as QUAL2E, Bathtub, and CE-QUAL-RI that can be found at <http://el.erdc.usace.army.mil/products.cfm?Topic=none>.

evaluate several direct (e.g., active aeration technologies) and indirect (e.g., activities such as watershed management to reduce nitrogen and phosphorous runoff, which result in improved DO) reservoir aeration techniques. The program considers the following aeration techniques: improving water quality in the reservoir, modifying the withdrawal outlet location (and thereby changing which water is withdrawn and released from the reservoir), treating the release water to eliminate the poor quality as the flow passes through the outlet structure, and treating the release water in the tail water area (Wilhelms and Yates, 1995).

Watershed Protection Practices

Many NPS pollution problems in reservoirs and dam tailwaters frequently result from sources in the contributing watershed (e.g., sediment, nutrients, metals, and toxics). Management of pollution sources from a watershed has been found to be a cost-effective solution for improving reservoir and dam tailwater water quality (TVA, 1988). Watershed protection practices can be effective in producing long-term water quality benefits and lack the high operation and maintenance costs associated with structural controls.

Additional information about watershed protection, specifically developing and implementing watershed plans, is available from EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*. The handbook is available at <http://www.epa.gov/nps>.

Watershed protection is a technique that provides long-term water quality benefits, and many states and local communities have adopted this practice. Numerous state and local governments have already legislated and implemented detailed watershed planning programs that are consistent with this management measure. For example, Oregon, New Jersey, Delaware, and Florida have passed legislation that requires county and municipal governments to adopt comprehensive plans, including requirements to direct future development away from sensitive areas. Many municipalities and regions have adopted land use and growth controls, including the towns of Amherst and Norwood and the Cape Cod region of Massachusetts; Narragansett, Rhode Island; King County, Washington; and many others.

Watershed protection management practices fall under the following four categories:

- Encourage drainage protection—includes descriptions and applications of zoning techniques that can be used to limit development density or redirect density to less environmentally sensitive areas.
- Establish and protect stream buffers—describes important steps for protecting or establishing riparian buffer zones to enhance water quality and pollutant removal.
- Identify and address NPS contributions—involves identifying potential upstream sources of nonpoint source pollution, as well as providing solutions to minimize those impacts.
- Identify and preserve critical areas—entails identifying properties that if preserved or enhanced could maintain or improve water quality and reduce the impacts of urban runoff, as well as, preserving environmentally significant areas (includes land acquisition, easements, and development restrictions of various types).

Refer to Chapter 7 for additional information about each of the above practices.

Reservoir Aeration Practices

Systems that have been developed and tested for reservoir aeration rely on atmospheric air, compressed air, or liquid oxygen to increase DO concentrations in reservoir waters. Mixing of reservoir water to destratify warmer, oxygen rich, epilimnion and cooler, oxygen poor, hypolimnion waters can be used. However, this practice has not been used at large hydropower reservoirs because of the associated cost in deep, large volume reservoirs. Refer to Chapter 7 for additional information about reservoir aeration practices.

Practices to Improve Oxygen Levels in Tailwaters

Aeration of water as it passes through the dam or through the portion of the waterway immediately downstream from the dam is another approach to improving DO in water releases from dams. The systems in this category rely on agitation and turbulence to mix the reservoir releases with atmospheric air. One approach involves the increased use of spillways, which release surface water to prevent it from overtopping the dam. An alternative approach is to install barriers called weirs in the downstream areas. Weirs are designed to allow water to overtop them, which can increase DO through surface agitation and increased surface area contact. Some of these downstream systems create supersaturation of dissolved gases and may require additional modifications to prevent supersaturation, which may be harmful to aquatic organisms.

The quality of reservoir releases can be improved through adjustments in the operational procedures at dams. These include scheduling of releases or of the duration of shutoff periods, instituting procedures for the maintenance of minimum flows, making seasonal adjustments in the pool levels or in the timing and variation of the rate of drawdown, selecting the turbine unit that most increases DO (often increasing the DO levels by 1 mg/L), and operating more units simultaneously (often increasing DO levels by about 2 mg/L). The magnitude and duration of reservoir releases also should be evaluated to determine impacts to the salinity regime in coastal waters, which could be substantially altered from historical patterns.

Two factors should be considered when evaluating the suitability of hydraulic structures such as spillways and weirs for their application in raising the DO concentration in waterways:

- Most of the measurements of DO increases associated with hydraulic structures have been collected at low-head facilities. The effectiveness of these devices may be limited as the level of discharge increases (Wilhelms, 1988).
- The hydraulic functioning of these types of structures should be carefully considered since undesirable flow conditions may occur in some instances (Wilhelms, 1988).

Practices that improve oxygen levels in tailwaters include:

- Gated conduits
- Labyrinth weirs
- Modifying operational procedures
- Reregulation weirs
- Selective withdrawal

- Spillway modifications
- Turbine operation
- Turbine venting
- Water conveyances

Additional information about each of these practices is available in Chapter 7.

Practices to Restore or Maintain Aquatic and Riparian Habitat

Several options are available for the restoration or maintenance of aquatic and riparian habitat in the area of a reservoir impoundment or in portions of the waterway downstream from a dam. One set of practices is designed to augment existing flows that result from normal operation of the dam. These include operation of the facility to produce flushing flows, minimum flows, or turbine pulsing. Another approach to producing minimum flows is to install small turbines that operate continuously. Installation of reregulation weirs in the waterway downstream from the dam can also achieve minimum flows. Finally, riparian improvements are discussed for their importance and effectiveness in restoring or maintaining aquatic and riparian habitat in portions of the waterway affected by the location and operation of a dam.

A 2004 report from the National Academies' National Research Council (NRC, 2004) illustrates the importance of maintaining instream flows and critical wildlife habitat in streams where dams are present and notes that areas along Nebraska's Platte River are properly designated as "critical habitats" for the river's endangered whooping crane and threatened piping plover. A series of dams and reservoirs have been constructed in the river basin for flood control and to provide water for farm irrigation, power generation, recreation, and municipal use. The alterations to the river and surrounding land caused by this extensive water-control system, however, resulted in habitat changes that were at odds with the protection of the listed species.

Conflicts over the protection of federally listed species and water management in the Platte River Basin have existed for more than 25 years. In recent years, the Fish and Wildlife Service of the U.S. Department of the Interior issued a series of biological opinions indicating that new water depletions would have to be balanced by mitigation measures, and a lawsuit forced the designation of "critical habitat" for the piping plover. These and other controversies prompted the Department of the Interior and the Governance Committee of the Platte River Endangered Species Partnership to request that the National Research Council examine whether the current designations of "critical habitat" for the whooping crane and piping plover are supported by existing science. The National Research Council was also asked to assess whether current habitat conditions are affecting the survival of listed species or limiting their chances of recovery, and to examine the scientific basis for the department's instream-flow recommendations, habitat-suitability guidelines, and other decisions. The report concludes that in most instances habitat conditions are indeed affecting the likelihood of species survival and recovery.

Additional information about the following practices to restore or maintain aquatic and riparian habitat are available in Chapter 7:

- Constructed spawning beds
- Flow augmentation

- Riparian improvements
- Spillway modifications

Practices to Maintain Fish Passage

Migrating fish populations may be unable to travel up or downstream because of the presence of a dam or suffer losses when passing through the turbines of hydroelectric dams at facilities that have not been equipped with special design features to accommodate fish passage. The effect of dams and hydraulic structures on migrating fish has been studied since the early 1950s in an effort to develop systems or identify operating conditions that would minimize mortality rates. Selecting a device or management strategy for optimal fish passage in a stream or river with a dam requires careful analysis of a variety of factors, such as species, type and operational strategy of the dam, and the physical characteristics of the river system.

Larinier (2000) reports that devices such as fish ladders and bypass channels can help fish travel past dams, but may result in increased mortality due to the hardship and stress involved with passing through these structures. In addition, the fish passage structures have to be placed in a suitable entrance location, have a flow that is attractive to the species of concern, be continually maintained, and possess the hydraulic conditions necessary for the target species (Larinier, 2000). With all of these requirements, the success of a fish ladder or similar device is often uncertain. Passage through the hydraulic turbines of a hydropower dam can cause increased stress as a result of changes in velocity or pressure and the possibility of electric shocks from the turbines and can lead to increased mortality (Larinier, 2000).

The safe passage of fish either upstream or downstream through a dam requires a balance between operation of the facility for its intended uses and implementation of practices that will ensure safe passage of fish. The United States Congress' Office of Technology Assessment (OTA) report on fish passage technologies at hydropower facilities provides an excellent overview of fish passage technologies and discusses some of the economic considerations associated with the safe passage of fish (OTA, 1995).

The U.S. Fish and Wildlife Service and its partners have created a database that makes information about barriers to fish passage in the United States available to policy makers and the public. The database, known as the Fish Passage Decision Support System (FPDSS),⁶ is part of the U.S. Fish and Wildlife Service's National Fish Passage Program.⁷

Available fish-protection systems for hydropower facilities fall into one of four categories based on their mode of action (Stone and Webster, 1986): behavioral barriers, physical barriers, collection systems, and diversion systems. These are discussed in separate sections below, along with additional practices that have been successfully used to maintain fish passage: spill and water budgets, fish ladders, fish lifts, advanced hydroelectric turbines, transference of fish runs, and constructed spawning beds.

⁶ <https://ecos.fws.gov/fpdss/index.do>

⁷ <http://www.fws.gov/fisheries/fwma/fishpassage>

Upstream fish passage systems have been constructed at approximately 10 percent of the FERC licensed hydropower plants. Upstream fish passage systems such as fish ladders and lifts are considered adequately developed for anadromous species such as salmon, American shad (*Alosa sapidissima*), alewives (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*). Fish passage systems for riverine fish have not been specifically designed, although some of these species will use fish passage systems designed for anadromous species (OTA, 1995).

Practices include:

- Advanced hydroelectric turbines
- Behavioral barriers
- Collection systems
- Fish ladders
- Fish lifts
- Physical barriers
- Spill and water budgets
- Transference of fish runs

Additional information about the above practices is available in Chapter 7.

Removal of Dams

The removal of dams has become an accepted practice for dam owners to deal with unsafe, unwanted, or obsolete dams. Dam removal may be necessary as dams deteriorate, sediments accumulate behind dams in reservoirs, human needs shift, and economics dictate (NRC, 1992). Dams serve a variety of important social and environmental purposes (e.g., water supply, flood control, power generation, wildlife habitat, and recreation). As a result, dam removal is often infrequent.

Dam Removal Resource

American Rivers is a nonprofit organization focusing on the health of U.S. river systems, fish, and wildlife. American Rivers' website hosts a variety of information related to hydromodification, including past and recent estimates of dam removals in the United States.
<http://www.americanrivers.org>

Migratory fish passage throughout United States rivers and streams is obstructed by over 2 million dams and many other barriers such as blocked, collapsed, and perched culverts. The National Oceanic and Atmospheric Administration (NOAA) is expanding its community-based approach to restoring fish habitat through the recently developed Open Rivers Initiative (ORI).⁸ Administered by NOAA Fisheries Service Office of Habitat Conservation, ORI is designed to help communities correct fish passage problems by focusing financial and technical resources on the removal of obsolete dams and other blockages. ORI strives to restore vital habitat for migrating fish like salmon, striped bass, sturgeon, and shad, as well as improve community safety and stimulate economic revitalization of riverfront communities. Through its more broadly focused Community-based Restoration Program (CRP), NOAA Fisheries Service has opened over 700 miles of stream habitat with financial and technical assistance provided to fish passage

⁸ <http://www.nmfs.noaa.gov/habitat/restoration/ORI>

projects. Examples of successfully completed CRP projects that fit the Open Rivers Initiative model include:

- Culvert removal in the John Smith Creek (Mendocino County, CA)
- Mt. Scott Creek dam removal (Happy Valley, OR)
- Wyomissing Creek dam removal (Reading, PA)
- Town Brook dam removal and fish ladder (Plymouth, MA)
- Sennebec dam removal (Union, ME)

There are many things to consider when removing a dam, one of which is the function(s) of the dam and the status of that function (active vs. inactive). As discussed above, dams are used for various purposes, including water supply, hydroelectric power, recreation, and flood control benefits. When proposals are made to remove a dam with one or more of these active functions, the way in which these functions and benefits will be replaced or mitigated must be addressed (FOR, 1999). An example of this process can be seen with the Jackson Street Dam, located on Bear Creek in Medford, Oregon. The dam diverted water from the creek into the irrigation canals of Rogue River Valley Irrigation District (RRVID). Since the dam created a partial barrier to migratory fish, a loss of stream habitat, and an algae-filled impoundment near the city park, a consensus was reached that removing the dam was the most cost-efficient means of eliminating the problem. However, since the dam was currently providing irrigation diversion, another cost-efficient diversion had to be devised for RRVID. The decision was made to replace the old dam with a less damaging diversion structure. The new structure is approximately one-fourth the height of the Jackson Street Dam (about 3 feet) and is located 1,200 feet upstream. The new structure is also removed at the end of the irrigation season, which coincides with the time of the year when most upstream migration occurs. When the new structure is in place during the irrigation season, it allows fish to migrate (by well-designed fish ladders and screens), and it was designed so that little water will back up behind it. It is also equipped with fish screens to keep fish out of the irrigation canal (FOE et al., 1999).

It is also important to consider the cost of removing a dam, and who will pay for the removal. Removal costs can vary from tens of thousands of dollars to hundreds of millions of dollars, depending on the size and location of the dam. Who pays for dam removal can be a complex issue. Removal in the past has often been financed by the dam owner; local, state, and federal government; and in some cases agreements where multiple stakeholders cover the costs (American Rivers, n.d.a.). A guide to selected funding sources (*Paying for Dam Removal: A Guide to Selected Funding Sources*)⁹ is available from American Rivers.

Dam owners are responsible to keep the dam safe. When a dam begins to fail or breach, a decision must be made as to whether to keep or repair the structure. When a dam generates no revenue, the long-term costs of liability insurance, dam and impoundment maintenance, and operation weigh heavily on the side of dam removal. On average, dam removal costs 3–5 times less than repair.

Source: Delaware Riverkeeper, n.d.

⁹ <http://www.americanrivers.org/site/DocServer/pdr-color.pdf?docID=727>

In the case of the Jackson Street Dam, the most cost-effective alternative to solving the problems associated with the dam was to remove it. However, since it was currently functioning, an alternative means to provide that function was needed. In some instances, it is not more beneficial to remove the dam if it is functioning. For example, USACE expressed concern over the costs of air pollution created by fuel-burning power plants needed to replace the lost power from dams in the debate over the removal of the Snake River dams (Lee, 1999). There was much controversy over whether it was more cost-efficient to remove the dams, especially due to the functions the dams provided. USACE found that replacing the dams would be costly, both monetarily and ecologically. The estimated costs to replace the lower Snake hydropower were between \$180 million to \$380 million a year for 100 years (Lee, 1999). In addition, the cost of the resulting increase in pollution due to natural gas or coal replacement plants was very high, yet an actual amount was not determined.

Evaluations made by the USACE found that the costs associated with removing the Snake River dams greatly exceeded the costs of maintaining, improving, and keeping them (Associated Press, 2002). Therefore, the dams along the Snake River remain and have been repaired. USACE plans to pursue technical and operational changes at the Snake River dams to improve fish survival, in addition to barging or trucking juvenile salmon around the dams (Associated Press and the Herald Staff, 2002).

The entire decision-making process is a delicate balance that involves many stakeholders. One important step in this process is to decide if the ecological benefits of removing the dam outweigh the benefits of maintaining the dam.

When deciding whether to remove a dam, interested parties should collect as much information as possible about the potential removal project. American Rivers has published a fact sheet (*Data Collection: Researching Dams and Rivers Prior to Removal*),¹⁰ which contains a variety of sources to help begin researching the particular dam that might be removed and the river on which it is located (American Rivers, n.d.b.).

American Rivers and Trout Unlimited have published a guide to help decide whether to remove a dam or not, *Exploring Dam Removal: A Decision-Making Guide* (American Rivers and Trout Unlimited, 2002).¹¹

Repercussions of Unsafe Dams (American Rivers, 1999)

Unsafe dams may result in:

1. Loss of life from surging flows if a dam fails
2. Destruction of property
3. Harm to the downstream river environment (e.g., erosion)
4. Release of toxic sediments (e.g., dioxins, PCBs)
5. Risk to users of the river (i.e., users may not be able to avoid life threatening hazards if in close approximation to a failing dam)
6. Jeopardizing delivery of critical services to communities (e.g., power generation, flood control)

The decision-making process related to dam removal is often complex with inputs from stakeholders with opposing desired outcomes. Additional resources related to dam removal are available in the Resources chapter.

¹⁰ http://www.americanrivers.org/site/DocServer/Researching_a_Dam_Data_Collection.pdf?docID=981

¹¹ http://www.americanrivers.org/site/DocServer/Exploring_Dam_Removal-A_Decision-Making_Guide.pdf?docID=3641

Chapter 5: Streambank and Shoreline Erosion



Figure 5.1 Shoreline Erosion: Before and After Photos (SEAS, 2007)

Streambanks and shorelines naturally erode. Water flowing along (parallel to) streambanks dislodges sediment and other materials that constitute the streambank. Similarly, water flowing perpendicular to shorelines, due to waves or tides, transports sediment and other materials away from the shoreline. Anthropogenic influences change the natural erosion processes, often increasing erosion locally and sedimentation downstream, along adjacent shorelines, or offshore. Many human activities change the hydraulic characteristics of stream flows or transfer energy to adjacent shorelines and contribute to increased streambank and shoreline erosion, for example:

- *Urbanization* that leads to changes in imperviousness creates changes in the hydraulics of water during wet weather events. Increased imperviousness can result in flashier runoff events that are shorter in duration with greater flow rates and more erosive force.
- *Agricultural practices*, such as drainage ditches, can change the characteristics of subsurface water flows into receiving streams. These changes result in less subsurface water storage and often increase stream flows during and after storms.
- *Livestock grazing* may reduce vegetative cover, which can result in more erosion on uplands and increased sediment and other pollutant loads in streams. Livestock that are allowed direct access to streams can significantly increase streambank erosion and destroy important riparian habitat.
- *Roads* built in rural areas, such as forest and recreational roads, alter the natural landscape and can destroy riparian habitat. If not properly installed and maintained, these types of roads erode and supply increased sediment and pollutants to adjacent streams. Additionally, roads may increase imperviousness, which leads to flashier runoff events. Stream crossings associated with rural roads can block fish passage, trap debris during storms, and lead to increased streambank erosion in nearby areas.
- *Marinas* can alter local wave and tidal flow patterns, resulting in transference of wave and tidal energy to adjacent shorelines.
- *Channelization or channel straightening* sometimes results in an increase in the slope of a channel, which causes an increase in stream flow velocities. Channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. In addition, newly

constructed banks are generally more prone to erosion than “seasoned” banks and are more likely to require bank stabilization.

- *Dams* alter the flow of water, sediment, organic matter, and nutrients, resulting in both direct physical and indirect biological effects. The impact of a dam on a stream corridor can vary, depending on the purposes of the dam and its size in relation to stream flow. Varying discharges released from a hydropower dam can be a significant factor increasing streambank erosion. When dams are a barrier to the flow of sediment and organic materials, the decreased suspended sediment load in release waters may lead to scouring of downstream streambeds and streambanks.

In summary, these anthropogenic factors can affect the state of equilibrium in streams or along shorelines. The typical chain of events that follows the disturbance to a stream corridor or shoreline can be described as changes in:

- Hydrology
- Stream hydraulics
- Morphology
- Factors such as sediment transport and storage
- Alterations to the biological community
- Impervious cover

Management Measure 6: Eroding Streambanks and Shorelines

Management Measure 6

- 1) Where streambank or shoreline erosion is a nonpoint source (NPS) pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more effective, considering the severity of stream flow discharge, wave and wind erosion, and offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
- 2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
- 3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Typically, several streambank and shoreline stabilization techniques may be used to effectively control erosion wherever it is a source of nonpoint pollution. Often a combination of techniques may be necessary to effectively control conditions that are causing the increased erosion. Techniques involving marsh creation and vegetative bank stabilization (“soil bioengineering”) will usually be effective at sites with limited exposure to strong currents or wind-generated waves. In cases with increased erosional forces, an integrated approach that employs the use of structural systems in combination with soil bioengineering techniques can be utilized. The use of harder, more structural approaches, including beach nourishment and coastal or riparian structures, may need to be considered in areas facing severe water velocities or wave energy. In addition to controlling the sources of sediment contributed to surface waters, which are causing nonpoint source (NPS) pollution, these techniques can halt the destruction of wetlands and riparian areas located along the shoreline. Once affected streambanks and shorelines are protected, they can serve as a filter for surface water runoff from upland areas, or as a temporary sink for nutrients, contaminants, or sediment already present as NPS pollution in surface waters.

Stabilization practices involving vegetation or engineering structures should be properly designed and installed. These techniques should be applied only when there will be no adverse effects to aquatic or riparian habitat, or to the stability of adjacent shorelines. In addition to activities that are applied directly to an eroding streambank or shoreline, there may be opportunities to promote institutional measures that establish minimum setback requirements or a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

Stream-friendly Project Tips

Before Construction

- Involve your neighbors to increase project success
- Get the necessary permits
- Flag and avoid disturbing wetlands
- Preserve existing native trees and shrubs
- Cut trees and shrubs rather than ripping them out of the ground (many may resprout)
- Make a plan to replant disturbed areas and use native plants
- Install sediment-control practices (e.g., coffer dams)

During Construction

- Stockpile fertile topsoil for later use for plants
- Use hand equipment rather than heavy equipment
- If using heavy equipment, use wide-tracks or rubberized tires
- Work from the streambank, preferably on the higher, non-wetland side
- Avoid instream work except as authorized by your local fishery and wildlife authority
- Stay 100 feet away from water when refueling or adding oil
- Avoid using wood treated with creosote or copper compounds

After Construction

- Keep out people and livestock during plant establishment
- Check project after high flows
- Water plants during *droughts*
- Control grass until trees and shrubs overtop grass, usually two to three years

Source: SWCD. No date. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. Washington County Soil and Water Conservation District and the Small Acreage Steering Committee, Oregon Association of Conservation Districts. <http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf>. Accessed June 2003.

Initially project planners can consider whether a complete removal or reversal of the causative effects is possible. For example, when evaluating restoration sites affected by upstream armoring and urbanization, rather than adding armoring to the downstream site that is eroding, the planning team may consider whether changes to operations up stream can be made. Next, activities to improve existing erosion damage may be examined. The alteration of operation approaches in combination with management and restoration efforts can reduce future impacts. Similarly, removal of channelization structures may allow for a greater recovery of the integrity of a stream corridor. If feasible, the objective of a restoration design should be to eliminate or moderate disruptive influences to allow for equilibrium (NRC, 1992). If this is not possible, restoration may have limited effectiveness in the long term or may require a closer look at an entire watershed to determine alternate restoration activities. See Chapter 6 for additional information on watershed planning and restoration information.

A glossary of stream restoration terms is available from U.S. Army Corps of Engineers' Ecosystem Management and Restoration Research Program at <http://el.ercdc.usace.army.mil/elpubs/pdf/sr01.pdf>.

This management measure was selected for the following reasons:

- Many anthropogenic activities can destabilize streambanks and shorelines, resulting in erosion that contributes significant amounts of NPS pollution in surface waters.
- The loss of coastal land and streambanks due to shoreline and streambank erosion results in reduction of riparian areas and wetlands that have NPS pollution abatement potential.
- A variety of activities related to use of shorelands or adjacent surface waters can result in erosion of land along coastal bays or estuaries and loss of land along rivers and streams.

Preservation and protection of shorelines and streambanks can be accomplished through many approaches, but preference in this guidance is for vegetative practices, such as soil bioengineering and marsh creation, where their use is appropriate.

Management Practices for Management Measure 6

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. A variety of vegetative and structural practices are presented and are examples of activities that can be used as a single practice or in combination with other practices to achieve the desired project goals. An example of a source of information is the USACE publication *Stream Management* (Fischenich and Allen, 2000), which provides a good summary of vegetative and structural practices as well as a comprehensive review of processes related to stream and streambank erosion. The document also presents a thorough overview of planning activities for approaching streambank erosion issues.

The types of practices that can be used to accomplish the elements of Management Measure 6, including the following groups of practices:

- Vegetative practices
- Structural practices
- Integrated systems
- Planning and regulatory approaches

Vegetative Practices

Vegetative practices have a long history of use in Europe for streambank and shoreline protection and for slope stabilization. Prior to the 1980s, they have been practiced in the United States only to a limited extent, primarily because other engineering options, such as the use of riprap, have been more commonly accepted practices (Allen and Klimas, 1986). The use of vegetative streambank and shoreline stabilization practices have become more common in the United States over the past several decades as their implementation has shown to be physically and ecologically successful. Economically, less costly alternatives of stabilization, such as vegetative practices, are being pursued as alternatives to engineering structures for controlling erosion of streambanks and shorelines.

Vegetative practices, sometimes referred to as soil bioengineering, refer to the installation of plant materials as a main structural component in controlling problems of land instability where

erosion and sedimentation are occurring (USDA-NRCS, 1992). Vegetative practices can be defined as, “the use of live and dead plant materials, in combination with natural and synthetic support materials, for slope stabilization, erosion reduction, and vegetative establishment” (FISRWG, 1998).

Basic principles of soil bioengineering include the following (USDA-NRCS, 1992):

- Fit the soil bioengineering system to the site
 - Topography and exposure (e.g., note the degree of slope, presence of moisture)
 - Geology and soils (e.g., determine soil depth and type)
 - Hydrology (e.g., calculate peak flows in the project area)
- Retain existing vegetation whenever possible
- Limit removal of vegetation
- Stockpile and protect topsoil
- Protect areas exposed during construction
- Divert, drain, or store excess water

Additionally, vegetative approaches have the advantage of providing food, cover, and instream and riparian habitat for fish and wildlife and result in a more aesthetically appealing environment than traditional engineering approaches (Allen and Klimas, 1986). Many planners of vegetative practices try to utilize native plants and materials that can be obtained from local stands of species. These plants are already well adapted to the climate and soil conditions of the area and thus have an increased chance of becoming established and surviving. The use of locally available plants also cuts the costs of a restoration project (Gray and Sotir, 1996). Vegetative systems that use locally available plants have the added advantage of blending in with natural vegetation over time.

Additional benefits of using bioengineering methods include (USEPA, 2003c):

- Designed to be low maintenance or maintenance-free in the long run
- Enhance habitat not only by providing food and cover sources, but by serving as a temperature control for aquatic and terrestrial animals
- If successful, can stabilize slopes effectively in a short period of time (e.g., one growing season)
- Self-repairing after establishment
- Filter overland runoff, increase infiltration, and attenuate flood peaks

The limitations of vegetative practices include the need for skilled laborers and the difficulty of locating plant materials, particularly during the dormant season, which is the optimal time for installation. To properly establish a soil bioengineering planting, orientation, on-site training, and careful supervision of the labor crews are required. Another limitation, which is avoidable, is that projects that promote the growth of thick vegetation may increase roughness values or increase friction and raise floodwater elevations. This should be taken into consideration during the planning stages of a project and prevented.

Additional information about soil bioengineering principles is available from the *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).¹ Local agencies, such as the USDA Natural Resources Conservation Service (NRCS) and the Cooperative Extension Service, can be useful sources of information on appropriate native plant species to consider in bioengineering projects.

The USDA Forest Service has published *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*,² which provides information on how to successfully plan and implement a soil bioengineering project, including the application of soil bioengineering techniques. The guide also provides specific tips for using soil bioengineering techniques successfully.

Specific vegetative practices include (USDA-NRCS, 1992):

- Branch packing
- Brush layering
- Brush mattresses
- Coconut fiber roll
- Dormant post plantings
- Live fascines
- Live staking
- Marsh creation and restoration
- Tree revetments
- Vegetated buffers

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Structural Approaches

Soil bioengineering alone is not suitable in all instances. When considering an approach to streambank or shoreline stabilization, it is important to take several factors into account. For example, it is inappropriate to stabilize slopes with vegetative systems in areas that would not support plant growth, such as those areas with soils that are toxic to plants, areas of high water velocity, or where there is significant wave action (Gray and Sotir, 1996). Shores subject to wave erosion will usually require structures or beach nourishment to dampen wave or stream flow energy.

Properly designed and constructed shoreline and streambank erosion control structures are used in areas where higher water velocity or wave energy make vegetative stabilization and marsh creation ineffective. In addition to careful consideration of the engineering design, the proper planning for a shoreline or streambank protection project will include a thorough evaluation of

¹ The soil bioengineering chapter of the handbook is available at <http://www.info.usda.gov/CED/ftp/CED/EFH-Ch18.pdf>.

² Available at <http://www.fs.fed.us/publications/soil-bio-guide>.

the physical processes causing the erosion. To complete the analysis of physical factors, the following steps are suggested (Hobbs et al., 1981):

- Determine the limits of the shoreline reach
- Determine the rates and patterns of erosion and accretion and the active processes of erosion within the reach
- Determine, within the reach of the sites of erosion-induced sediment supply, the volumes of that sediment supply available for redistribution within the reach, as well as the volumes of that sediment supply lost from the reach
- Determine the direction of sediment transport and, if possible, estimation of the magnitude of the gross and net sediment transport rates
- Estimate factors such as ground-water seepage or surface water runoff that contribute to erosion

Some of the most widely accepted alternative engineering practices for streambank or shoreline erosion control are described below. These practices will have varying levels of effectiveness depending on the strength of waves, tides, streamflow, or currents at the project site. They will also have varying degrees of suitability at different sites and may have varying types of secondary impacts. One important impact that must always be considered is secondary effects, such as the transfer of wave or streamflow energy, which can cause erosion elsewhere, either offshore or alongshore. Finding a satisfactory balance between these three factors (effectiveness, suitability, and secondary impacts) is often the key to a successful streambank or shoreline erosion control project.

Examples of structural approaches include:

- Beach nourishment
- Breakwaters
- Bulkheads and seawalls
- Check dams
- Groins
- Levees, setback levees, and floodwalls
- Return walls
- Revetment
- Riprap
- Toe protection
- Wing deflectors

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Integrated Systems

The use of structural systems alone may raise concern because these systems lack vegetation, which can be effective at stabilizing soils in most conditions. Additionally, vegetated systems

can help to restore damaged habitat along shorelines and streambanks. Integrated systems, which combine structural systems and vegetation, can be very effective in many settings where vegetation adds support and habitat to structural systems. An example of an integrated system is the use of stones for toe protection (structural) and soil bioengineering techniques (vegetative) for the upper banks of a waterway. Integrated slope protection designs that employ the traditional structural methods and the soil bioengineering techniques have proven to be more cost effective than either method independently. Where construction methods are labor-intensive and labor costs are reasonable, the combination of methods may be especially cost effective (Gray and Sotir, 1996).

Integrated systems include:

- Bank shaping and planting
- Joint planting
- Live cribwalls
- Riparian improvements
- Root wad revetments
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)

Refer to Chapter 7 for additional information regarding the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Planning and Regulatory Approaches

In addition to the vegetative, structural, and integrated practices discussed above, another group of practices that can be used to protect streambanks and shorelines includes planning and regulatory approaches. The variety of planning activities include practices in waters adjacent to eroding streambanks and shorelines (e.g., evaluating the erosion potential) and on land areas adjacent to eroding streambanks and shorelines (e.g., watershed planning processes). There are also a variety of local policy and regulatory activities that can be used to protect sensitive or eroding streambanks and shorelines ranging from setback requirements and vegetated buffer minimum widths to requirements for erosion and sediment control plans for various types of construction activities. The following are examples (with complete descriptions located in Chapter 7) of planning and regulatory protection activities that could be used to protect vulnerable streambanks or shorelines:

- Erosion and sediment control plans
- Establishment and protection of stream buffers
- Rosgen's stream classification method
- Setbacks
- Shoreline sensitivity assessment

Chapter 6: Guiding Principles

Many of the management measures and practices recommended by EPA to reduce the nonpoint source (NPS) pollutant impacts associated with hydromodification activities stress the need to incorporate planning as a tool. States, local governments, or community groups should begin the planning process early when trying to determine how to address a particular NPS issue associated with a new or existing hydromodification project. The planning process should bring key stakeholders together so that a variety of options can be explored to adequately define the problem and potential solutions. Once the issues are identified according to the various perspectives, project goals can be established to solve one or more environmental problems.

One important part of the planning process is the identification of the goals of the different stakeholders. Once these goals, which are sometimes different for the different groups of stakeholders, are identified and defined, the planning team can strive to achieve a balance among the needs of the various stakeholders. Often restoration compromises can be made to meet differing goals of the stakeholders to achieve a balance of the needs of the different groups. For example, changes in hydroelectric dam operation may be possible to produce minimum base flows downstream from the dam to support a variety of aquatic habitats, while still providing energy in a profitable manner. In addition, solutions that only allow for complete removal of the dam and restoration to preexisting stream conditions may not be possible because of other changes in the watershed (e.g., urbanization, other hydromodification projects, or the need for affordable and environmentally friendly electricity). A compromise solution that enables the dam to continue to operate while minimizing environmental impacts and to enhance critical downstream habitats that support a desirable fish population may be the best solution.

Part of the planning process and achievement of balance when evaluating techniques for restoring areas impacted by NPS pollution associated with hydromodification activities can be termed “creating opportunities.” For example, an opportunity may be found by working with stakeholders such as local homeowners who are concerned about the unsightly algae present in a community reservoir. Reducing runoff containing an abundant supply of nitrogen and phosphorous pollutants from lawns surrounding the reservoir may lead to reductions in the algal bloom. Changes in land use that result in increasing the permeability of land adjacent to a channelized stream can reduce the overall volume and velocity of water in the stream. As flooding conditions are reduced, “hard” structures like bulkheads can be replaced with softer, vegetative solutions along the stream channel. The combination of reduced scouring flows associated with the greater stream velocities and vegetated channel banks can lead to improved instream ecological conditions. There are many other possible opportunities waiting to be found and implemented when projects are evaluated at the watershed level.

Project planning and analysis are essential parts of success when trying to reduce the impact of NPS pollution from new or existing hydromodification activities. One example of a planning process is explained in the EPA document *Ecological Restoration: A Tool to Manage Stream Quality* (USEPA, 1995a). This document outlines the key steps in the ecological restoration decision framework as:

- Identification of impaired or threatened watersheds

- Inventory of the watershed
- Identification of the restoration goals
- Selection of candidate restoration techniques
- Implementation of selected restoration techniques
- Monitoring

Other EPA guidance documents offer similar approaches to the restoration planning process, including *Community-Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities* (USEPA, 1997a). Both guidance documents offer a variety of case studies to provide readers with examples of the frameworks as they are applied to real-world situations. EPA's *Draft Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) also provides useful planning information related to watershed plans.

The Natural Resources Conservation Service (NRCS) is also a source of information for planning. NRCS provides assistance through their Watershed Protection and Flood Prevention Program, whose purpose is to assist federal, state, local agencies, local government sponsors, tribal governments, and program participants to protect and restore watersheds from damage caused by erosion, floodwater, and sediment; to conserve and develop water and land resources; and to solve natural resource and related economic problems on a watershed basis. The program provides technical and financial assistance to local people or project sponsors, builds partnerships, and requires local and state funding contribution.¹

NRCS uses locally-led conservation programs, which are an extension of the agency's traditional assistance to individual farmers and ranchers, for planning and installing conservation practices for soil erosion control, water management, and other purposes. Through this effort, local people, generally with the leadership of conservation districts along with NRCS technical assistance, will assess their natural resource conditions and needs, set goals, identify ways to solve resource problems, utilize a broad array of programs to implement solutions, and measure their success.

When planning any new development activities or restoration of already developed or impacted activities, it is important to account for the guiding principles:

- Using a watershed approach
- Smart growth principles
- Project design principles
- Monitoring and maintenance of structures

Each of these principles is discussed in more detail below.

¹ Additional information about this program, as well as contact information is available at <http://www.nrcs.usda.gov/programs/watershed>.

Using a Watershed Approach

EPA recommends the use of a watershed approach as the key framework for dealing with problems caused by runoff and other sources that impair surface waters (USEPA, 1998). The watershed protection approach is a comprehensive planning process that considers all natural resources in the watershed, as well as social, cultural, and economic factors. Using a watershed approach, multiple stakeholders integrate regional and locally-led activities with local, state, tribal, and federal environmental management programs. EPA works with federal agencies, states, tribes, local communities, and non-governmental sectors to make a watershed approach the key coordinating framework of planning, restoration, and protection efforts to achieve “clean and safe” water and healthy aquatic habitat.

The watershed approach framework can be applied to address impacts caused by hydromodification activities throughout a watershed. Additionally, the watershed approach can help to identify and address problems within a watershed that increase NPS pollution associated with hydromodification activities.

Major elements of successful watershed approaches include:

- Focusing on hydrologically-defined areas—watersheds and aquifers have hydrologic features that converge to a common point of flow; watersheds range in size from very large (e.g., the Mississippi River Basin) to a drainage basin for a small creek.
- Using an integrated set of tools and programs (regulatory and voluntary, federal/state/tribal/local and non-governmental sectors) to address the myriad problems facing the Nation’s water resources, including NPS and point source pollution, habitat degradation, invasive species, and air deposition of pollutants (e.g., mercury and nutrients).
- Involving all parties that have a stake or interest in developing collaborative solutions to a watershed’s water resource problems.
- Using an iterative planning or adaptive management process of assessment and setting environmental, water quality, and habitat goals (e.g., water quality standards).
- Planning, implementation, and monitoring to ensure that plans and implementation actions are revised to reflect new data.
- Breaking down barriers between plan development and implementation to enhance prospects for success.

A key attribute of the watershed approach is that it can be applied with equal success to large- and small-scale watersheds. Federal agencies, states, interstate commissions, and tribes usually apply the approach on larger scales, such as in watersheds greater than 100 square miles in size.

However, local agencies and urban communities can apply the approach to watersheds as small as several acres in size.

Although specifics may vary from large scale to small scale, the basic goals of the watershed approach remain the same—protecting, maintaining, and restoring water resources, based on the geomorphology, ecology, and other natural characteristics of the waterbody. Local runoff management program officials must be especially conscious of watershed scale when planning and implementing specific management practices. For example, programmatic practices, such as stream protection ordinances and public education campaigns, are usually applied community wide. Consequently, the results benefit many small watersheds. In contrast, structural practices, such as vegetative approaches, usually provide direct benefits to a single stream. Regional structural management practices such as headland breakwater systems for larger watersheds can be used, but they do not protect smaller contributing streams. Given limited resources, program officials must often analyze cost and benefits and choose between large- and small-scale practices. Often, a combination of nonstructural and structural practices implemented across the watershed and at regional and local levels is the most cost effective approach.

An example of the watershed approach being used for hydromodification activities is the South Myrtle Creek Ditch Project. South Myrtle Creek, which flows into the South Umpqua River in Oregon, was historically populated with cutthroat trout (*Oncorhynchus clarki*) and coho salmon (*Oncorhynchus kisutch*). However, since the early 20th century, diversion structures, used primarily to provide water for irrigating agricultural crops, have blocked the passage of fish through creek waters (USEPA, 2002c). One example of the diversion structures was a diversion dam with a concrete apron, which was installed in a portion of South Myrtle Creek to raise the water level in an impoundment to provide irrigation water for adjacent and downstream landowners. During the summer, water levels in the creek would elevate 14 feet above natural levels and were diverted into a 2.5 mile irrigation ditch. Ultimately, hydromodification of this stream caused flow modifications and high stream temperatures, which degraded water quality for the native trout and salmon populations.

9 Elements of Watershed Planning

EPA has identified a minimum of nine elements that are critical for achieving improvements in water quality. EPA requires that these nine elements be addressed for section 319-funded watershed plans and strongly recommends that they be included in all other watershed plans that are intended to remediate water quality impairments. Additional information is available from FY 2004 Guidelines for the Award of Section 319 Nonpoint Source Grants to States and Territories at <http://www.epa.gov/owow/nps/cwact.html>. The nine elements are listed below:

- a. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. Sources that need to be controlled should be identified at the significant subcategory level along with estimates of the extent to which they are present in the watershed (e.g., X linear miles of eroded streambank needing remediation).
- b. An estimate of the load reductions expected from management measures.
- c. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions and a description of the critical areas in which those measures will be needed to implement this plan.
- d. Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.
- e. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.
- f. Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.
- g. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.
- h. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.
- i. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above.

In 1998 one of the landowners initiated a project to restore flow and improve water quality in South Myrtle Creek. The project used the guiding principles of the watershed approach to restore the health of the creek.

- *Partnership.* The project was a collaborative effort of landowners, who donated services and supplies. The project received funding and support from government agencies, such as the U.S. Fish and Wildlife Service, the Oregon Water Resources Department, the Oregon Watershed Enhancement Board, the Bureau of Land Management, the Natural Resources Conservation Service, and the Douglas County Watermaster.

- *Geographic focus.* Resource management activities were directed specifically to the creek and the drainage ditch, where flow restoration and improved water quality were desired.
- *Sound management techniques based on strong science and data.* An assessment of South Myrtle Creek identified water quality problems from flow modification and high stream temperatures as the priority problems in the creek. The diversion dam and concrete apron were found to be causing the problems. Landowners, the Water Resources Department, and the Watershed Enhancement Board developed a plan, the goal of which was to restore flow and improve water quality in the creek. The plan was implemented by removing the diversion dam and concrete apron. The irrigation system was switched to a sprinkler type system, which is more efficient than the original ditch irrigation. In addition, the denuded riparian area was revegetated to help lower stream temperatures and new seedlings were protected with fencing to keep away livestock.

With the cooperation of the landowners, the county and state governments, and other interested parties, the South Myrtle Creek Ditch Project was a success. Water temperatures have improved and flows have increased by 2.5 cubic feet per second during the summer. Restoration of the streambed to its historical level has allowed passage of salmon and trout to the 10 miles of stream above the dam (USEPA, 2002c).²

Smart Growth

Smart growth practices cover a range of development and conservation strategies that are environmentally sensitive, economically viable, community-oriented, and sustainable. Environmental impacts of development can be reduced with techniques that include compact development, reduced impervious surfaces and improved water detention, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.

Through smart growth approaches that enhance neighborhoods and involve local residents in development decisions, these communities are creating vibrant places to live, work, and play. The high quality of life in these communities makes them economically competitive, creates business opportunities, and improves the local tax base. Smart growth practices have also been shown to help protect water quality by reducing the amount of paved surfaces and allowing natural lands to filter rainwater and runoff before it reaches downstream areas.

Based on the experience of communities around the nation that have used smart growth approaches to create and maintain great neighborhoods, the Smart Growth Network³ developed a set of ten basic principles:

² Additional information about the project is available at <http://www.epa.gov/owow/nps/Section319III/OR.htm>.

³ Smart Growth Network (SGN) is a partnership of government, business, and civic organizations that support smart growth. The SGN Web site, Smart Growth Online (<http://www.smartgrowth.org/Default.asp?res=1024>), features an extensive array of smart growth-related news, events, information, research, presentations, and publications.

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

EPA offers help to communities through the EPA smart growth program to improve development practices and get the type of development they want. They work with local, state, and national experts to discover and encourage successful, environmentally sensitive development strategies. EPA is engaged in conducting research, publishing reports and other publications,⁴ showcasing outstanding communities, working with communities through grants⁵ and technical assistance (Smart Growth Implementation Assistance Program),⁶ and bringing together diverse interests to encourage better growth and development.⁷

Low Impact Development

Low Impact Development (LID) is an innovative stormwater management approach. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source (Low Impact Development Center, Inc., n.d.).

LID is based on the paradigm that stormwater management should not be viewed as stormwater disposal and that numerous opportunities exist within the developed landscape to control stormwater runoff close to the source. These principles include (NRDC, n.d.):

- Integrate stormwater management early in site planning activities
- Use natural hydrologic functions as the integrating framework
- Focus on prevention rather than mitigation
- Emphasize simple, low-tech, and low cost methods
- Manage as close to the source as possible
- Distribute small-scale practices throughout the landscape
- Rely on natural features and processes
- Create a multifunctional landscape

⁴ <http://www.epa.gov/piedpage/publications.htm>

⁵ <http://www.epa.gov/piedpage/grants/index.htm>

⁶ <http://www.epa.gov/piedpage/sgia.htm>

⁷ Links to technical assistance, tools, partnerships and grants and other funding are at "Making Smart Growth Happen" at http://www.epa.gov/piedpage/sg_implementation.htm.

The use of LID practices offers both economic and environmental benefits. LID measures result in less disturbance of the development area and conservation of natural features, and they can be less cost intensive than traditional stormwater control mechanisms. Cost savings for control mechanisms are not only for construction, but also for long-term maintenance and life cycle cost considerations (USEPA, 2000).

Ten common LID practices are the following (NRDC, n.d.):

- Impervious surface reduction and disconnection
- Permeable pavers
- Pollution prevention and good housekeeping
- Rain barrels and cisterns
- Rain gardens and bioretention
- Roof leader disconnection
- Rooftop gardens
- Sidewalk storage
- Soil amendments
- Tree preservation
- Vegetated swales, buffers, and strips

Project Design Considerations

General Design Factors

When designing any type of restoration project, it is important to consider the watershed as a whole as well as the specific site where restoration will occur. A watershed survey, or visual assessment, evaluates an entire watershed and can be used to help identify and verify pollutants, sources, and causes of impairments that lead to changes in streambank erosion. Additional monitoring of chemical, physical, and biological conditions may be necessary to determine if water quality is actually being affected by observed pollutants and sources. Watershed surveys can provide an accurate picture of what is occurring in the watershed. EPA's *Volunteer Stream Monitoring: A Methods Manual*⁸ provides a watershed survey visual assessment form that may be used. In addition to EPA's method, a variety of visual assessment protocols have been developed by states and agencies. Designers of watershed restoration plans should look for assessment protocols that are already being used in their state or local area (USEPA, 2005c). Another general resource for planning and implementing restoration projects associated with hydromodification activities is EPA's *National Management Measures to Protect and Restore Wetlands* (USEPA, 2005b).

Photographs may also be a powerful tool that can be incorporated into watershed surveys. Photos serve as a visual reference for the site and provide before and after pictures that may be used to analyze restoration or remediation activities. In addition to taking individual photographs, aerial photographs may also provide important before and after information and can be obtained from

⁸ <http://www.epa.gov/owow/monitoring/volunteer/stream/vms32.html>

USGS (Earth Science Information Center), USDA (Consolidated Farm Service Agencies, Aerial Photography Field Office), and other agencies (USEPA, 2005c). Refer to EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) for more information about watershed assessments.

Assessment

Tools to analyze channels on a site-by-site basis may include geomorphic assessments such as the methodology developed by Rosgen. Geomorphic assessments help to determine river and stream characteristics such as channel dimensions, reach slope, and channel enlargement and stability. This information about stream physical characteristics might help the restoration team to understand current stream conditions and may be evaluated over time to describe degradation or improvements in the stream. Geomorphic assessment may also be useful for predicting future stream conditions, which can help in selecting suitable restoration or protection approaches (USEPA, 2005c).

The Rosgen geomorphic assessment approach groups streams into different geomorphic classes, based on a set of criteria that include entrenchment ratio, width/depth ratio, sinuosity, channel slope, and channel materials. Assessment methodologies, such as Rosgen's Stream Classification System, can help identify streams at different levels of impairment, determine the types of hydrologic and physical factors affecting stream morphologic conditions, and choose appropriate management measures to implement if needed.⁹ Another common geomorphic assessment method is the Modified Wolman Pebble Count (Harrelson et al., 1994), which characterizes the texture (particle size) in the stream or riverbeds of flowing surface waters. It can be used alone or with Rosgen-type assessments. The composition of the streambed can provide information about the characteristics of the stream, including effects of flooding, sedimentation, and other physical impacts on a stream (USEPA, 2005c). Other assessment methods may be available from state agencies or environmental organizations.

The physical conditions of a site can provide important information about factors affecting overall stream integrity, such as agricultural activities and urban development. Runoff from cropland and feedlots can carry sediment into streams, clog existing habitat, and change geomorphological characteristics. An understanding of stream physical conditions can facilitate identification of sources and pollutants and allow for designing and implementing more effective restoration and protection strategies. Physical characterization should also extend beyond the streambanks or shore and include a look at conditions in riparian areas (USEPA, 2005c).

Before choosing a practice to restore an area impacted by hydromodification activities, it is also important to determine what biological endpoints are desired and to consider other environmental or water quality goals. Biological endpoints may include metrics such as the number of fish surviving, number of offspring produced, impairment of reproductive capability, or morbidity. Biological endpoints can be used to evaluate the effectiveness of treatment schemes and can serve as a design parameter during restoration planning. Water quality goals, such as increasing low dissolved oxygen levels, reducing nitrogen or phosphorous pollutant

⁹ More information about the Rosgen Stream Classification System is available at http://www.epa.gov/watertrain/stream_class/index.htm.

levels, or decreasing turbidity, are also important to consider when planning restoration. For example, if turbidity is a major problem in the waterbody, planners will want to choose a method of restoration that prevents erosion, is efficient at trapping sediment before it enters the waterbody, or one that will help sediment to settle in desired locations of the stream or river. Looking at endpoints and goals before designing the method of restoration can help planners and stakeholders achieve the desired results.

Engineering Considerations

When choosing from the various alternatives of engineering practices for addressing impacts associated with hydromodification, such as protecting and restoring eroding streambanks and shorelines, the following factors should be taken into consideration:

- Foundation conditions
- Level of exposure to erosive forces
- Availability of materials
- Initial and annual costs
- Past performance

Foundation conditions may have a significant influence on the selection of the specific practice or combination of practices to be used for restoring areas impacted by hydromodification, including shoreline or streambank stabilization. Foundation characteristics at the site must be compatible with the structure that is to be installed for erosion control. A structure such as a bulkhead, which must penetrate through the existing substrate for stability, will generally not be suitable for shorelines with a rocky bottom. Where foundation conditions are poor or where little penetration is possible, a gravity-type structure such as a stone revetment may be preferable. However, all vertical protective structures (revetments, seawalls, and bulkheads) built on sites with soft or unconsolidated bottom materials can experience scouring as incoming waves are reflected off the structures. In the absence of additional toe protection in these circumstances, the level of scouring and erosion of bottom sediments at the base of the structure may be severe enough to contribute to structural failure at some point in the lifetime of the installation.

Along streambanks, the erosive force of the current during periods of high streamflow will influence the selection of bank stabilization techniques and details of the design. For shorelines, the levels of wave exposure at the site will also generally influence the selection of shoreline stabilization techniques and details of the design. In areas of severe levels of exposure to erosive forces, such as strong wave action or currents, light structures such as vegetative techniques, timber cribbing, or light riprap revetment may not provide adequate protection. The effects of winter ice along the shoreline or streambank may also need to be considered in the selection and design of erosion control projects.

The availability of materials is another key factor influencing the selection of suitable techniques for protecting and restoring areas affected by hydromodification activities. For a vegetative approach, availability of plant materials of sufficient quantity and quality is an important design consideration. A particular type of bulkhead, seawall, or revetment may not be economically feasible if materials are not readily available near the construction site. Installation methods may also preclude the use of specific structures in certain situations. For instance, the installation of

bulkhead pilings in coastal areas near wetlands may not always be permissible due to disruptive impacts in locating pile-driving equipment at the project site.

Costs should also be included in the decision making process for implementing hydromodification practices. The total cost of a project should be viewed as including both the initial costs (materials, labor, and planning) and the annual costs of operation and maintenance. To the extent possible, practices should be compared by their total costs. Although a particular practice may be cheaper initially, it could have operation and maintenance costs that make it more expensive in the long run. For example, in some parts of the country, the initial costs of timber bulkheads may be less than the cost of stone revetments. However, stone structures typically require less maintenance and have a longer life than timber structures. Other types of structures whose installation costs are similar may actually have a wide difference in overall cost when annual maintenance and the anticipated lifetime of the structure are considered (USACE, 1984). Environmental benefits, such as creation of habitat, should also be factored into cost evaluations.

An example of a valuable resource that provides specific cost information for practices to protect or reduce streambank and shoreline erosion is your local USDA Service Center, which makes available services provided by the NRCS.¹⁰

The engineering designers should also evaluate similar existing projects and practice designs to determine how well they performed compared to design specifications. An important consideration for determining past performance is to compare the physical, water quality, and biological endpoints specified in the design with the corresponding endpoints that were observed in the monitoring results. For example, if an operation and maintenance program for an urban channelization project incorporates establishment of vegetative cover along many of the low energy areas of an urban stream, the long-term performance of the vegetative cover can be evaluated with metrics such as:

- Percent of riparian area with erosion problems
- Number of recreationally important fish species present
- Annual operation and maintenance costs
- Changes in important water quality parameter values (e.g., dissolved oxygen, turbidity)

Incorporating Monitoring and Maintenance of Structures

Generally, the monitoring program will help to determine how well the project is performing with respect to the design goals and the extent of any maintenance activities needed (NRC, 1992). The project monitoring plan should be an integral part of the overall design and will be an important consideration for developing long-term project costs and resource needs. Once the project's goals are established, performance indicators are then matched to the goals to create the

¹⁰ A list of USDA Service Centers is available at <http://offices.sc.egov.usda.gov/locator/app>. A list of regional and state NRCS offices is available at <http://www.nrcs.usda.gov/about/organization/regions.html#state>.

monitoring program (NRC, 1992). The monitoring program should also be appropriate to the scope of the project (NRC, 1992) by including considerations such as:

- The area covered by the monitoring compared to the area of the overall project—both should be similar.
- The frequency and intensity of sampling to provide reliable assessments of the performance indicators.
- The cost and resources required for monitoring should reflect the overall cost and resources of the project.
- The performance indicators provide information to enable effective assessments of the project goals and decision-making for project maintenance activities.

Each project will have unique goals and corresponding monitoring needs. Chapter 3 of The National Research Council's document *Restoration of Aquatic Ecosystems* (NRC, 1992) provides detailed advice on considerations for planning a monitoring program for restoration activities such as those associated with hydromodification activities. Some additional monitoring considerations can be found in the USDA Forest Service document *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002):

- Keeping track of where plants were harvested—is there a correlation between growth rate of certain cuttings and the “mother” plants?
- Is the installation functioning as designed?
- Which areas are maturing more rapidly than others?
- Are seeds sprouting in the newly formed beds?
- Which plants have invaded the site through natural succession?
- What has sprouted in the second season?
- Which areas are experiencing difficulty and why?
- Is the bank stabilizing or washing away and why?
- Is something occurring that is unexpected?
- Which techniques are succeeding?
- Are any of the structures failing?

USDA NRCS' *The Practical Streambank Bioengineering Guide*¹¹ (Bentrup and Hoag, 1998) provides an example monitoring form. The monitoring sheet is also available in Appendix C of *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002).¹²

During the first few years after installation, maintenance is necessary until vegetation becomes established and the bank stabilizes. Structures may shift or you may notice something that was left undone. Once vegetation is established, projects should become self-sustaining and require little or no maintenance. Be sure the site is managed to give the treatment every chance to be effective over a long period of time (USDA-FS, 2002).

¹¹ <http://www.engr.colostate.edu/~bbledsoe/CE413/idpmcpustguid.pdf>

¹² <http://www.fs.fed.us/publications/soil-bio-guide/guide/appendices.pdf>

Common maintenance tasks include (USDA-FS, 2002; Bentrup and Hoag, 1998):

- Remove debris and weeds that may shade and compete with cuttings
- Secure stakes, wire, twine, etc.
- Control weeds
- Repair weakened or damaged structures (including fences)
- Replant and reseed as necessary (it is not uncommon for a flood to occur days after installation)

It is beneficial to inspect the project every other week for the first 2 months after installation, once a month for the next 6 months, and then every other month for 2 years, at least. One should also inspect the project after heavy precipitation, flooding, snowmelt, drought, or any extraordinary occurrence.

Assess damage from flooding, wildlife, grazing, boat wakes, trampling, drought, and high precipitation (USDA-FS, 2002). Additional information about monitoring is available from USDA NRCS' *The Practical Streambank Bioengineering Guide* (Bentrup and Hoag, 1998).

Maintenance varies with the structural type. For stone revetments, the replacement of stones that have been dislodged is necessary; timber bulkheads need to be backfilled if there has been a loss of upland material, and broken sheet pile should be replaced as necessary. Gabion baskets should be inspected for corrosion failure of the wire, usually caused either by improper handling during construction or by abrasion from the stones inside the baskets. Baskets should be replaced as necessary since waves will rapidly empty failed baskets.

Steel, timber, and aluminum bulkheads should be inspected for sheet pile failure due to active earth pressure or debris impact and for loss of backfill. For all structural types not contiguous to other structures, lengthening of flanking walls may be necessary every few years. Through periodic monitoring and required maintenance, a substantially greater percentage of coastal structures will perform effectively over their design life. Since streambank or shoreline protection projects can transfer energy from one area to another, which causes increased erosion in the adjacent area, the possible effects of erosion control measures on adjacent properties should be routinely monitored.

Planting success varies from project to project. Bentrup and Hoag (1998) provide the following potential growth success rates:

<i>Pole Plantings</i>	<i>70-100%</i>
<i>Live Fascines</i>	<i>20-50%</i>
<i>Brush Layering</i>	<i>10-70%</i>
<i>Post Plantings</i>	<i>50-70%</i>

Plan and design all streambank, shoreline, and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding streambanks or shorelines.

Chapter 7: Practices for Implementing Management Measures

Many of the operation and maintenance solutions presented in Chapter 3 (Channelization and Channel Modification) are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5 (Streambank and Shoreline Erosion). For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source (NPS) pollution problem because of the upstream development and hardened streambanks.

The following practices apply to one or more management measures. The descriptions and illustrations presented in this chapter are intended to provide a starting point for stakeholders and decision-makers for selecting possible practices to address NPS pollution problems associated with hydromodification activities. Table 7.1 provides a cross-reference of the practices with possible applications for the various hydromodification management measure components (e.g., instream and riparian restoration corresponds to the second component of Management Measures 1 and 2 described in detail in Chapter 3). Users of the information provided in the following table and descriptions evaluate the attributes of the possible practices with site-specific conditions in mind.

Table 7.1 Practices for Hydromodification Management Measures

	Channelization		Dams							Streambanks				Shorelines				
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Practices	MM1	MM2	MM3	MM4	MM5					MM6								
Advanced Hydroelectric Turbines (7-7)										•								
Bank Shaping and Planting (7-9)	•	•	•										•					•
Beach Nourishment (7-10)												•				•		
Behavioral Barriers (7-12)										•								
Branch Packing (7-14)	•	•	•								•							
Breakwaters (7-15)																•		
Brush Layering (7-17)	•	•	•								•							
Brush Mattressing (7-19)	•	•	•								•							
Bulkheads and Seawalls (7-21)	•	•	•									•				•		
Check Dams (7-22)	•	•	•	•								•						
Coconut Fiber Roll (7-23)	•	•	•								•							
Collection Systems (7-25)										•								
Construct Runoff Intercepts (7-26)			•	•														
Constructed Spawning Beds (7-27)									•									
Construction Management (7-28)			•															
Dormant Post Plantings (7-29)	•	•	•								•				•			

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Encourage Drainage Protection (7-30)						•												
Equipment Runoff Control (7-31)					•													
Erosion and Sediment Control (ESC) Plans (7-32)	•	•	•										•					•
Erosion Control Blankets (7-35)			•															
Establish and Protect Stream Buffers (7-37)		•				•							•					
Fish Ladders(7-38)									•									
Fish Lifts (7-40)									•									
Flow Augmentation (7-41)								•										
Fuel and Maintenance Staging Areas (7-43)					•													
Gated Conduits (7-44)								•										
Groins (7-45)																•		
Identify and Address NPS Contributions (7-46)						•												
Identify and Preserve Critical Areas (7-48)						•												
Joint Planting (7-50)	•	•	•										•					
Labyrinth Weir (7-51)								•										
Levees, Setback Levees, and Floodwalls (7-52)	•	•										•			•			

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July 2007

	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Live Cribwalls (7-54)	●	●	●										●					
Live Fascines (7-56)	●	●	●								●							
Live Staking (7-58)	●	●	●								●							
Locate Potential Land Disturbing Activities Away from Critical Areas (7-60)			●	●	●													
Marsh Creation and Restoration (7-61)		●									●			●				
Modifying Operational Procedures (7-62)							●											
Mulching (7-63)			●															
Noneroding Roadways (7-64)	●	●	●															
Pesticide and Fertilizer Management (7-67)					●													
Phase Construction (7-69)			●															
Physical Barriers (7-70)									●									
Pollutant Runoff Control (7-72)					●													
Preserve Onsite Vegetation (7-73)			●	●														
Reregulation Weir (7-74)							●											
Reservoir Aeration (7-75)								●										
Retaining Walls (7-77)			●	●														
Return Walls (7-78)	●	●									●				●			
Revegetate (7-79)			●															

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Revetment (7-80)	●	●	●								●				●			
Riparian Improvements (7-82)		●	●					●				●				●		
Riprap (7-83)	●	●	●								●				●			
Root Wad Revetments (7-84)	●	●	●									●						
Rosgen's Stream Classification Method (7-86)	●	●											●					
Scheduling Projects (7-88)			●															
Sediment Basins/Rock Dams (7-89)				●														
Sediment Fences (7-91)			●	●														
Sediment Traps (7-92)				●														
Seeding (7-93)			●															
Selective Withdrawal (7-94)							●											
Setbacks (7-95)	●	●											●					●
Shoreline Sensitivity Assessment (7-97)																		●
Site Fingerprinting (7-99)			●															
Sodding (7-100)			●															
Soil Protection (7-101)			●															
Spill and Water Budgets (7-102)									●									
Spill Prevention and Control Program (7-103)					●													
Spillway Modifications (7-104)							●	●										
Surface Roughening (7-105)			●															

	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Toe Protection (7-106)	●	●									●				●			
Training—ESC (7-107)			●															
Transference of Fish Runs (7-108)									●									
Tree Armoring, Fencing, and Retaining Walls or Tree Wells (7-109)			●															
Tree Revetments (7-110)	●	●	●							●				●				
Turbine Operation (7-112)							●											
Turbine Venting (7-113)							●											
Vegetated Buffers (7-114)	●	●	●	●						●				●				
Vegetated Filter Strips (7-115)			●	●														
Vegetated Gabions (7-116)	●	●	●										●			●		
Vegetated Geogrids (7-118)	●	●	●										●			●		
Vegetated Reinforced Soil Slope (VRSS) (7-120)	●	●	●										●			●		
Water Conveyances (7-121)							●											
Wildflower Cover (7-122)			●															
Wind Erosion Controls (7-123)			●															
Wing Deflectors (7-124)	●	●									●				●			

Advanced Hydroelectric Turbines

Hydroelectric turbines can be designed to reduce impacts to juvenile fish passing through the turbine as it operates. Most research on advanced hydroelectric turbines is being carried out by power producers in the Columbia River basin (U.S. Army Corps of Engineers (USACE) and public utility districts) who are looking to improve the survival of hydroelectric turbine-passed juvenile fish by modifying the operation and design of turbines. Development of low impact turbines is also being pursued on a national scale by the U.S. Department of Energy (DOE) (Cada, 2001).

In the last few years, field studies have shown that improvements in the design of turbines have increased the survival of juvenile fish. Researchers continue to examine the causes and extent of injuries from turbine systems, as well as the significance of indirect mortality and the effects of turbine passage on adult fish. Overall, improvements in turbine design and operation, and new field, laboratory, and modeling techniques to assess turbine-passage survival, are contributing towards improving downstream fish passage at hydroelectric power plants (Cada, 2001).

The redesign of conventional turbines for fish passage has focused on strategies to reduce obstructions and to narrow the gaps between moveable elements of the turbine that are thought to injure fish. The effects of changes in the number, size, orientation, or shape of the blades that make up the runner (the rotating element of a turbine which converts hydraulic energy into mechanical energy) are being investigated (Cada, 2001).

The USACE has put considerable resources into improving turbine passage survival. The USACE Turbine Passage Survival Program (TSP) was developed to investigate means to improve the survival of juvenile salmon as they pass through turbines located at Columbia and Snake River dams. The TSP is organized along three functional elements that are integrated to achieve the objectives (Cada, 2001):¹

- Biological studies of turbine passage at field sites
- Hydraulic model investigations
- Engineering studies of the biological studies, hydraulic components, and optimization of turbine operations

DOE supports development of low impact turbines under the Advanced Hydropower Turbine System (AHTS) Program. The AHTS program explores innovative concepts for turbine design that will have environmental benefits and maintain efficient electrical generation. The AHTS program awarded contracts for conceptual designs of advanced turbines to different firms/companies. Early in the development of conceptual designs, it became clear that there were

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

¹ Additional information about USACE efforts with advanced hydroelectric turbines is available at <http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf>.

significant gaps in the knowledge of fish responses to physical stresses (injury mechanisms) experienced during turbine passage. Consequently, the AHTS program expanded its activities to include studies to develop biological criteria for turbines (Cada, 2001).²

² Additional information about DOE efforts with advanced hydroelectric turbines is available at <http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf>.

Bank Shaping and Planting

Bank shaping and planting involve regrading a streambank to establish a stable slope angle, placing topsoil and other material needed for plant growth on the streambank, and selecting and installing appropriate plant species on the streambank. This design is most successful on streambanks where moderate erosion and channel migration are anticipated. Reinforcement at the toe of the bank is often required, particularly where flow velocities exceed the tolerance range for plantings and where erosion occurs below base flows. To determine the appropriate slope angle, slope stability analyses that take into account streambank materials, groundwater fluctuations, and bank loading conditions are recommended (FISRWG, 1998).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Bank Shaping and Vegetating*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/bankshaping.pdf>.

Channelization

- Physical & chemical
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Erosion

- Streambanks Shorelines
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- Planning & regulatory

Beach Nourishment

The creation or nourishment of existing beaches provides protection to the eroding area and can also provide a riparian habitat function, particularly when portions of the finished project are planted with beach or dune grasses (Woodhouse, 1978). Beach nourishment (Figures 7.1 through 7.4) requires a readily available source of suitable fill material that can be effectively transported to the erosion site for reconstruction of the beach (Hobson, 1977). Dredging or pumping from offshore deposits is the method most frequently used to obtain fill material for beach nourishment. A second possibility is the mining of suitable sand from inland areas and overland hauling and dumping by trucks. To restore an eroded beach and stabilize it at the restored position, fill is placed directly along the eroded sector (USACE, 1984). In most cases, plans must be made to periodically obtain and place additional fill on the nourished beach to replace sand that is carried offshore into the zone of breaking waves or alongshore in littoral drift (Houston, 1991; Pilkey, 1992).

- | |
|---|
| <p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input checked="" type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input checked="" type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
|---|

One important task that should not be overlooked in the planning process for beach nourishment projects is the proper identification and assessment of the ecological and hydrodynamic effects of obtaining fill material from nearby submerged coastal areas. Removal of substantial amounts of bottom sediments in coastal areas can disrupt populations of fish, shellfish, and benthic organisms (Atlantic States Marine Fisheries Commission, 2002). Grain size analysis should be performed on sand from both the borrow area and the beach area to be nourished. Analysis of grain size should include both size and size distribution, and fill material should match both of these parameters (Stauble, 2005). Fill materials should also be analyzed for the presence of contaminants, and contaminated sediment should not be used (CA Department of Boating and Waterways and State Coastal Conservancy, 2002). Turbidity levels in the overlying waters can also be raised to undesirable levels (EUCC, 1999). Certain

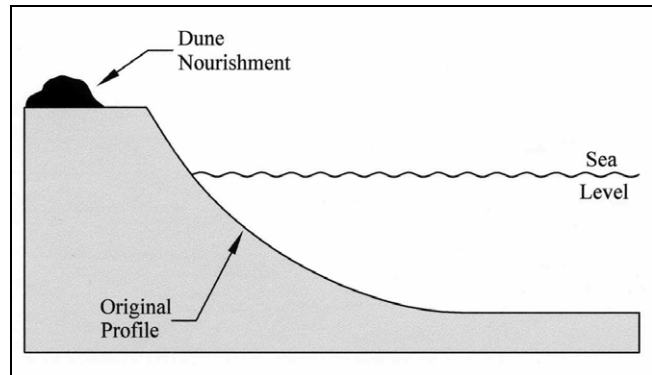


Figure 7.1 Dune Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

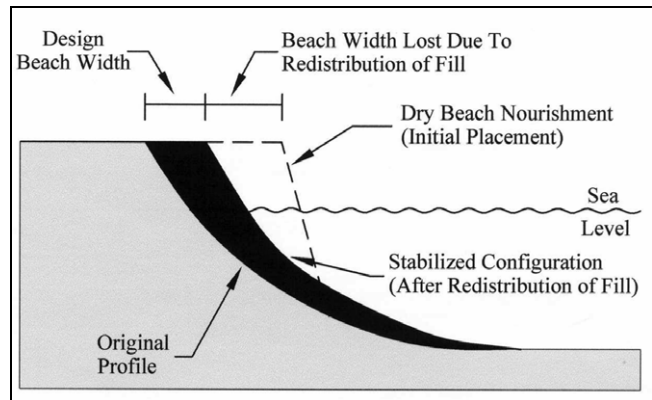


Figure 7.2 Dry Beach Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

areas may have seasonal restrictions on obtaining fill from nearby submerged areas (TRB, 2001). Timing of nourishment activities is frequently a critical factor since the recreational demand for beach use frequently coincides with the best months for completing the beach nourishment. These may also be the worst months from the standpoint of impacts to aquatic life and the beach community such as turtles seeking nesting sites.

Design criteria should include proper methods for stabilizing the newly created beach and provisions for long-term monitoring of the project to document the stability of the newly created beach and the recovery of the riparian habitat and wildlife in the area.

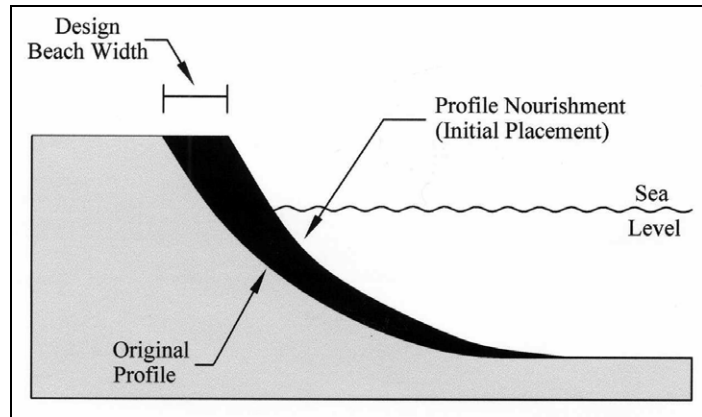


Figure 7.3 Profile Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

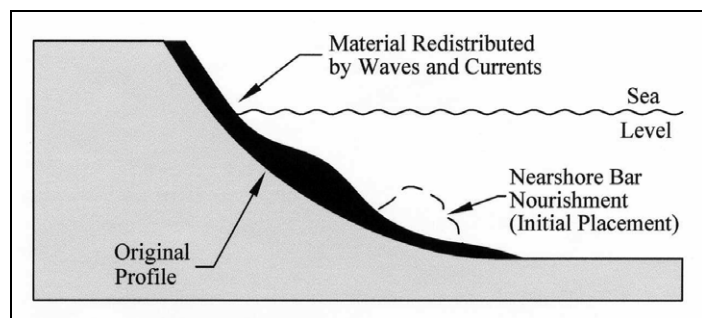


Figure 7.4 Nearshore Bar Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

Additional Resources

- Barber, D. No date. *Beach Nourishment Basics*. <http://www.brynmawr.edu/geology/geomorph/beachnourishmentinfo.html>.
- NOAA. No date. *Beach Nourishment: A Guide for Local Government Officials*. U.S. Department of Commerce, NOAA Coastal Services Center. <http://www.csc.noaa.gov/beachnourishment>.
- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Beach Nourishment*. http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.7.shtml.

Behavioral Barriers

Behavioral barriers use fish responses to external stimuli to keep fish away from intakes or to attract them to a bypass. Since fish behavior is notably variable both within and among species, behavioral barriers cannot be expected to prevent all fish from entering hydropower intakes. Environmental conditions such as high turbidity levels can obscure some behavioral barriers, such as lighting systems and curtains. Competing behaviors such as feeding or predator avoidance can also be a factor influencing the effectiveness of behavioral barriers at a particular time.

Electric screens, bubble and chain curtains, light, sound, and water jets have been evaluated in laboratory or field studies and show mixed results. Despite numerous studies, very few permanent applications of behavioral barriers have been realized (EPRI, 1999). Some authors suggest using behavioral barriers in combination with physical barriers (Mueller et al., 1999).

Electrical screens keep fish away from structures and guide them into bypass areas for removal. Fish seem to respond to the electrical stimulus best when water velocities are low. Tests of an electrical guidance system at the Chandler Canal diversion (Yakima River, Washington) showed efficiency ranging from 70 to 84 percent for velocities of less than 1 ft/sec. Efficiencies decreased to less than 50 percent when water velocities were higher than 2 ft/sec (Pugh et al., 1971). Success of electrical screens may be specific to species and fish size. An electrical field strength suitable to deter small fish may result in injury or death to large fish, since total fish body voltage is directly proportional to fish body length (Stone and Webster, 1986). Electrical screens require constant maintenance of electrodes and associated underwater hardware to maintain effectiveness. Surface water quality can affect the life and performance of electrodes.

Bubble and chain curtains are created by pumping air through a diffuser to create a continuous, dense curtain of bubbles, which can cause an avoidance response. Many factors affect fish response to the curtains, including temperature, turbidity, light, and water velocity. Bubbler systems should be constructed from corrosion-resistant materials and be installed with adequate positioning of the diffuser away from areas where siltation might clog the air ducts. Hanging chains provide a physical, visible obstacle that fish avoid. They are species-specific and lifestage-specific. Efficiency of hanging chains is affected by such variables as velocity, instream flow, turbidity, and illumination levels. Debris can limit their performance. In particular, buildup of debris can deflect chains into a nonuniform pattern and disrupt hydraulic flow patterns.

Strobe lights repel fish by producing an avoidance response. A strobe light system at Saunders Generating Station in Ontario, Canada was found to be 67 to 92 percent effective at repelling or diverting eels (EPRI, 1999). Turbidity levels can affect strobe light efficiency. The intensity and duration of the flash can also affect the response of the fish; for instance, an increase in flash duration has been associated with less avoidance. Strobe lights have the potential for far-field

Channelization

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Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
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- Planning & regulatory

fish attraction, since they can appear to fish as a constant light source due to light attenuation over a long distance (Stone and Webster, 1986). Strobe lights at Hiram M. Chittenden Locks in Seattle, Washington were examined to determine how fish respond, depending on strobe light distance. Vertical avoidance was 90 to 100 percent when lights were 0.5 meters away, 45 percent when 2.5 meters away, and 19 percent when 4.5 to 6.5 meters away (EPRI, 1999).

Mercury lights have successfully attracted fish to passage systems and repelled them from dams. Studies suggest their effectiveness is species-specific; alewives (*Alosa pseudoharengus*) were attracted to mercury light, whereas coho salmon (*Oncorhynchus kisutch*) and rainbow trout (*Oncorhynchus mykiss*) displayed no attraction to the light (Stone and Webster, 1986). In a test on the Susquehanna River (Maryland, Pennsylvania, and New York), mercury lights attracted gizzard shad (OTA, 1995). Although results have been mixed, low overall cost of the systems has led to continued research on their effectiveness (Duke Engineering & Services, Inc., 2000).

Underwater sound, broadcast at different frequencies and amplitudes, has been effective in attracting fish away from dams or repelling fish from dangers around dams, although the results of field tests are not consistent. Fish have been attracted, repelled, or guided by the sound. A study prepared for DOE showed that low-frequency, high particle motion was effective at invoking flight and avoidance responses in salmonids (Mueller et al., 1998). These findings agree with Knudsen et al. (1994), who found that low frequencies are efficient for evoking awareness reactions and avoidance responses in juvenile Atlantic salmon. Not all fish possess the ability to perceive sound or localized acoustical sources (Harris and Van Bergeijk, 1962). Fish also frequently seem to become habituated to the sound source.

Poppers are pneumatic sound generators that create a high-energy acoustic output to repel fish. Poppers have effectively repelled warm-water fish from water intakes. Laboratory and field studies in California indicate avoidance by several freshwater species such as alewives (*Alosa pseudoharengus*), perch, and smelt. Salmonids do not seem to be effectively repelled (Stone and Webster, 1986). Operation and maintenance considerations include frequent replacement of "O" rings, air entrainment in water inlets, and vibration of structures associated with the inlets.

Water jet curtains create hydraulic conditions that repel fish. Effectiveness is influenced by the angle at which water is jetted. Although effectiveness averages 75 percent (Stone and Webster, 1986), not enough is known to determine what variables affect performance of water jet curtains. Important operation and maintenance concerns would be clogging of the jet nozzles by debris or rust and the acceptable range of stream flow conditions, which contribute to effective results.

Hybrid barriers or combinations of different barriers can enhance the effectiveness of individual behavioral barriers. Laboratory studies showed a chain net barrier combined with strobe lights to be up to 90 percent effective at repelling some species and sizes of fish. Tests of combining rope-net and chain-rope barriers have shown good results. Barriers with horizontal and vertical components in the water column are more effective than those with vertical components alone. Barriers with a large diameter are more effective than those with a small diameter, and thicker barriers are more effective than thinner barriers. Effectiveness of hanging chains was increased when used in combination with strobe lights. Effectiveness also increased when strobe lights were added to air bubble curtains and poppers (Stone and Webster, 1986).

Branch Packing

Branch packing consists of alternating layers of live branch cuttings and compacted backfill to repair small, localized slumps and holes in slopes (Figure 7.5). Live branch cuttings may range from 0.5 to 2 inches in diameter. They should be long enough to touch undisturbed soil at the back of the trench and extend slightly outward from the rebuilt slope face. Wooden stakes should be 5 to 8 feet long, depending on the depth of the slump or hole being repaired. Stakes should also be made from poles that are 3 to 4 inches in diameter or 2 by 4 feet lumber. Live posts can be substituted. As plant tops begin to grow, the branch packing system becomes more effective in retarding runoff and reducing surface erosion. Trapped sediment refills the localized slumps or holes, while roots spread throughout the backfill and surrounding earth to form a unified mass. Branch packing is not effective in slump areas greater than 4 feet deep or 5 feet wide (USDA-NRCS, 1992). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA Natural Resources Conservation Service's (NRCS's) *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf
- ISU. 2006. *How to Control Streambank Erosion: Branchpacking*. Iowa State University.
<http://www.ctre.iastate.edu/erosion/manuals/streambank/branchpacking.pdf>

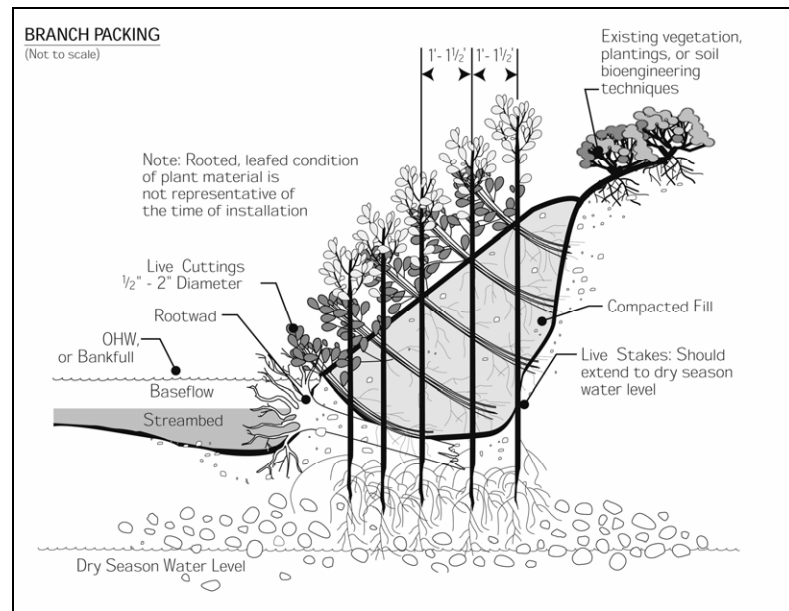


Figure 7.5 Branch Packing (USDA-FS, 2002)

Breakwaters

Breakwaters are wave energy barriers designed to protect the land or nearshore area behind them from the direct assault of waves. Breakwaters have traditionally been used only for harbor protection and navigational purposes; in recent years, however, designs of shore-parallel segmented breakwaters have been used for shore protection purposes (Fulford, 1985; Hardaway and Gunn, 1989; Hardaway and Gunn, 1991; USACE, 1990). Segmented breakwaters can be used to provide protection over longer sections of shoreline than is generally affordable through the use of bulkheads or revetments. Wave energy is able to pass through the breakwater gaps, allowing for the maintenance of some level of longshore sediment transport, as well as mixing and flushing of the sheltered waters behind the structures. The cost per foot of shore for the installation of segmented offshore breakwaters is generally competitive with the costs of stone revetments and bulkheads (Hardaway et al., 1991).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Figure 7.6 provides a view of breakwaters off the coast of Pennsylvania and Figure 7.7 illustrates single and multiple breakwaters.



Figure 7.6 Breakwaters – View of Presque Isle, Pennsylvania (USACE, 2003)

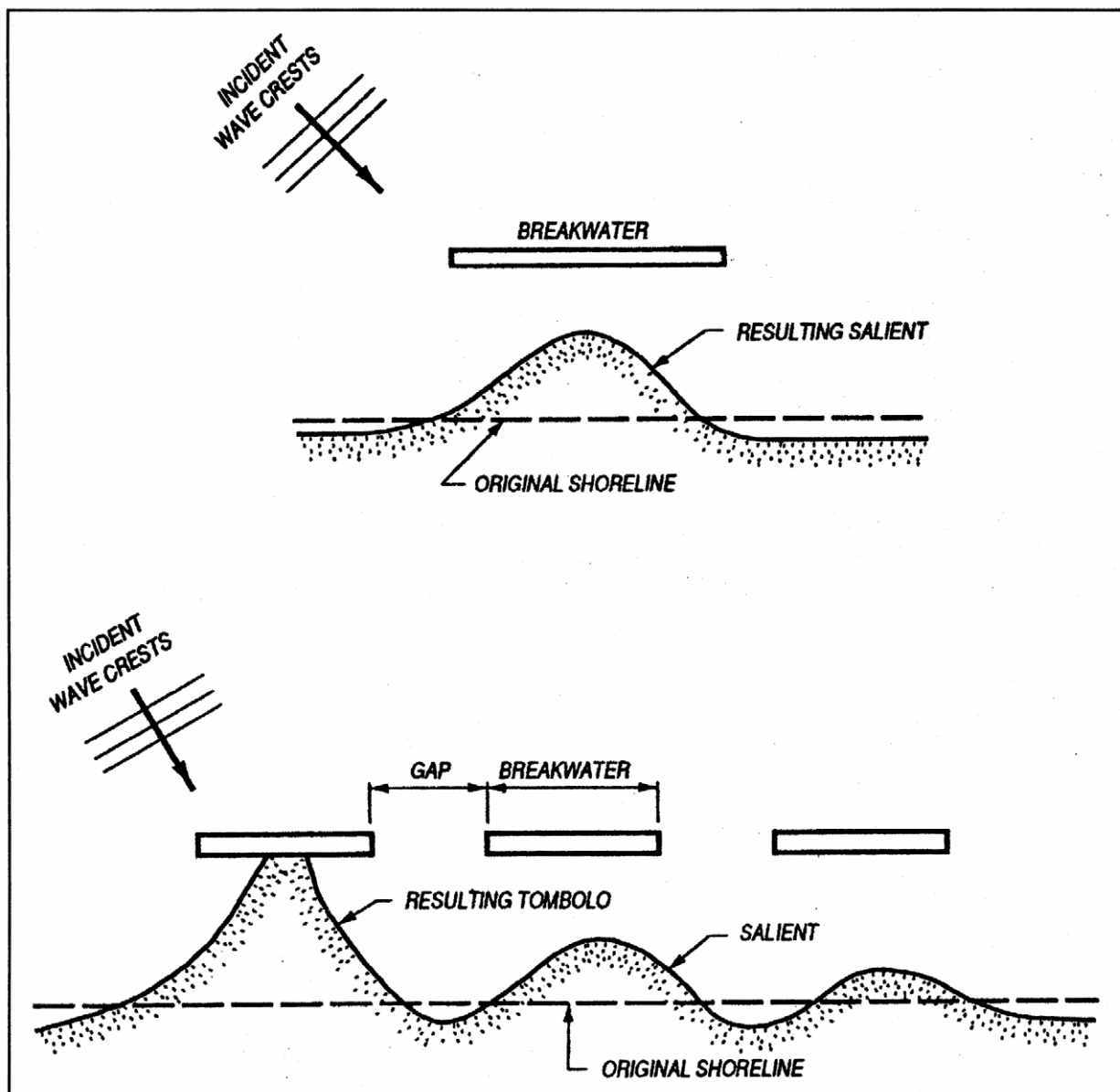


Figure 7.7 Single and Multiple Breakwaters (USACE, 2003)

Additional Resource

- USACE. No date. *Breakwaters*.
http://www.usna.edu/NAOE/courses/en420/bonnette/breakwater_design.html.

Brush Layering

Brush layering consists of placing live branch cuttings interspersed between layers of soil on cut slopes or fill slopes (Figures 7.8 and 7.9). These systems are recommended on slopes up to 2:1 in steepness and not to exceed 15 feet in vertical height. Branch cuttings, which are placed in a crisscross or overlapping pattern, should be long enough to reach the back of the bench and still protrude from the bank (growing tips facing the outside of the slope). The portions of the brush that protrude from the slope face assist in retarding runoff and reducing surface erosion. Backfill is then placed on the branches and compacted.

Brush layering can be used to stabilize a slope against shallow sliding or mass wasting, as well as to provide erosion protection. Brush layers can stabilize and reinforce the outside edge or face of drained earthen buttresses placed against cut slopes or embankment fills. Brush layering works better on fill slopes than cut slopes, because much longer stems can be used in fill (Mississippi State University, 1999). It is most applicable for areas subjected to cut or fill operations or areas that are highly disturbed and/or eroded (ECY, 2007)

Brush layering is somewhat similar to live fascine systems because both involve the cutting and placement of live branch cuttings on slopes. The two techniques differ principally in the orientation of the branches and the depth to which they are placed in the slope. In brush layering, the cuttings are oriented more or less perpendicular to the slope contour. In live fascine systems, the cuttings are oriented more or less parallel to the slope contour. The perpendicular orientation is more effective from the point of view of earth reinforcement and mass stability of the slope (USDA-NRCS, 1992). Thus, brush layering is more effective than live fascines in terms of earth reinforcement and mass stability (Mississippi State University, 1999). When used on a fill slope, brush layering is similar to vegetated geogrids, except the technique does not use geotextile fabric (USDA-FS, 2002).

Brush layering can disrupt native soils. Therefore, installation should be completed in phases and no more area should be excavated than is necessary (ECY, 2007).

Channelization

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- Instream/riparian restoration

Dams

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- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

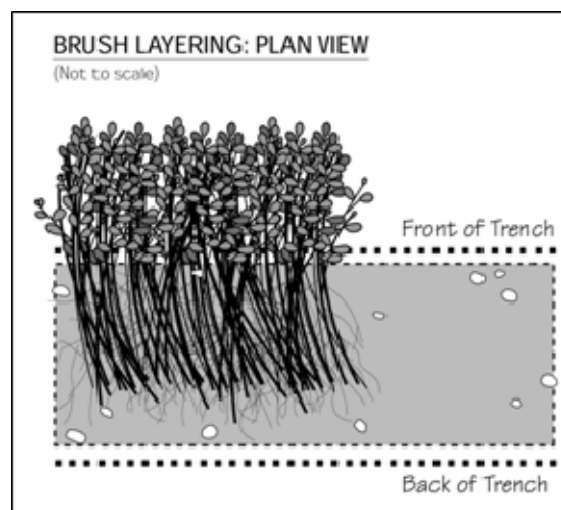


Figure 7.8 Brush Layering: Plan View (USDA-FS, 2002)

Additional Resources

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Layering*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute.
<http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushlayer.pdf>.

- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners: Brush Layering*. Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia, WA. Publication 93-30.
<http://www.ecy.wa.gov/programs/sea/pubs/93-30/brush.html>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Brush/Hedge – Brush Layering*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish.
<http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/hedgebrush.cfm>.

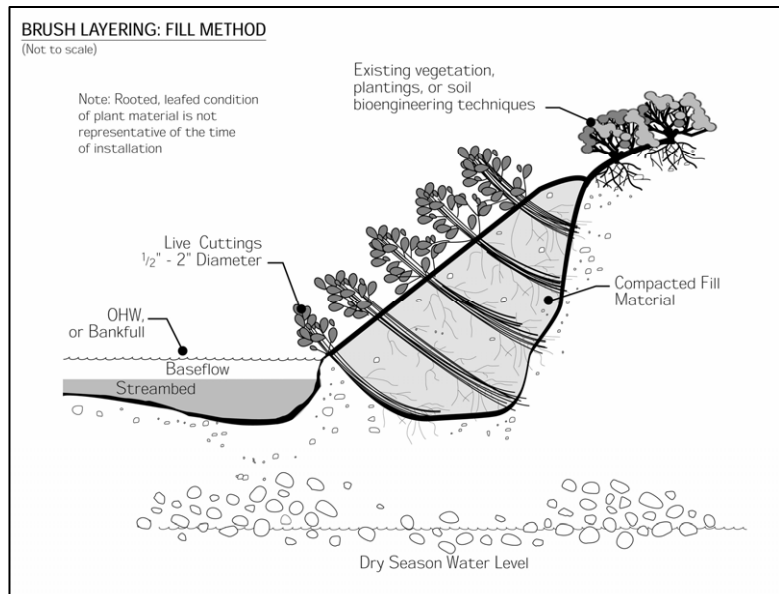


Figure 7.9 Brush Layering: Fill Method (USDA-FS, 2002)

Brush Mattressing

Brush mattressing is commonly used in Europe for streambank protection (Figure 7.10). It involves digging a slight depression on the bank and creating a mat or mattress from woven wire or single strands of wire and live, freshly cut branches from sprouting trees or shrubs. Branches approximately 1 inch in diameter are normally cut 6 to 9 feet long (the height of the bank to be covered) and laid in criss-cross layers with the butts in alternating directions to create a uniform mattress with few voids. The mattress is then covered with wire secured with wooden stakes 2.5 to 4 feet long. It is then covered with soil and watered repeatedly to fill voids with soil and facilitate sprouting; however, some branches should be left partially exposed on the surface. The structure may require protection from undercutting by placement of stones or burial of the lower edge. Brush mattresses are generally resistant to waves and currents and provide protection from the digging out of plants by animals. Disadvantages include possible burial with sediment in some situations and difficulty in making later plantings through the mattress.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
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- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under the Ecosystem Management and Restoration Research Program (EMRRP), the USACE has presented research on brush mattresses in a technical note (*Brush Mattresses for Streambank Erosion Control*).³

Additional Resources

- Allen, H.H. and C. Fischenich. 2001. *Brush Mattresses for Streambank Erosion Control*. U.S. Army Corps of Engineers, Ecosystem Management and Restoration Research Program. <http://el.erdc.usace.army.mil/elpubs/pdf/sr23.pdf>.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Brushmattress*. Iowa State University. <http://www.ctre.iastate.edu/erosion/manuals/streambank/brushmattress.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Mattress*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushmattress.pdf>.

³ <http://el.erdc.usace.army.mil/elpubs/pdf/sr23.pdf>

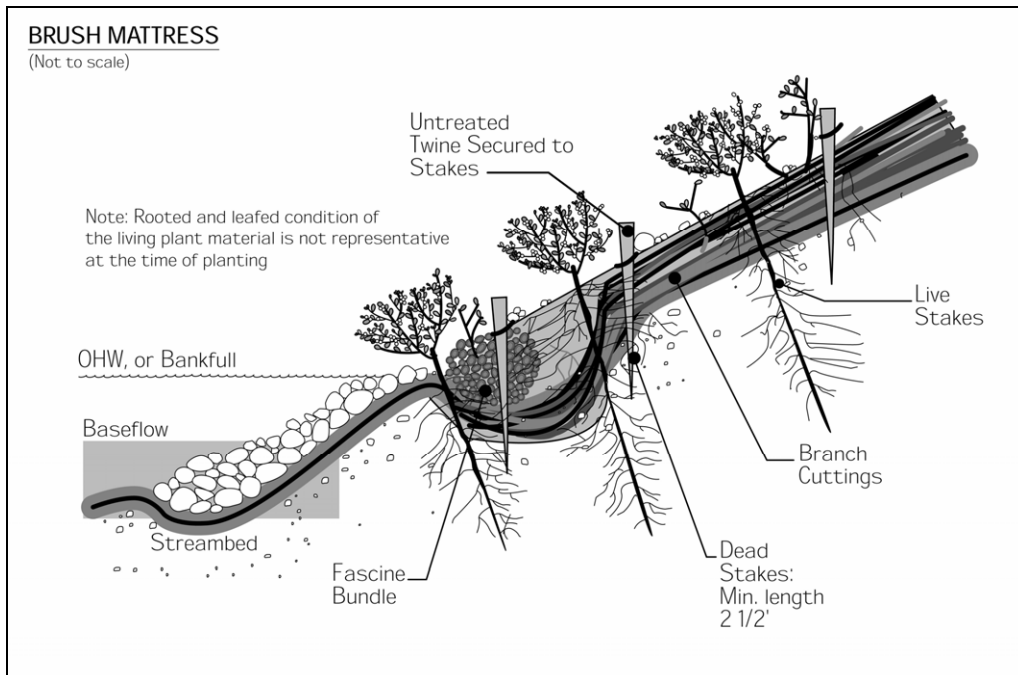


Figure 7.10 Brush Mattress (USDA-FS, 2002)

Bulkheads and Seawalls

Bulkheads (Figure 7.11) are primarily soil-retaining structures designed to also resist wave attack. Seawalls are principally structures designed to resist wave attack, but they also may retain some soil (USACE, 1984). Both bulkheads and seawalls may be built of many materials, including steel, timber, or aluminum sheet pile, gabions, or rubble-mound structures. Although bulkheads and seawalls protect the upland area against further erosion and land loss, they often create a local problem. Downward forces of water, produced by waves striking the wall, can produce a transfer of wave energy and rapidly remove sand from the wall (Pilkey and Wright, 1988). A stone apron is often necessary to prevent scouring and undermining. With vertical protective structures built from treated wood, there are also concerns about the leaching of chemicals used in the wood preservatives. Chromated copper arsenate (CCA), the most popular chemical used for treating the wood used in docks, pilings, and bulkheads, contains elements of chromium, copper, and arsenic that are toxic above trace levels (CSWRCB, 2005; Kahler et al., 2000).

Additional Resources

- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Seawalls*. http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.12.shtml.
- USACE. No date. *Bulkheads and Seawalls*. http://www.usna.edu/NAOE/courses/en420/bonnette/Seawall_Design.html.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

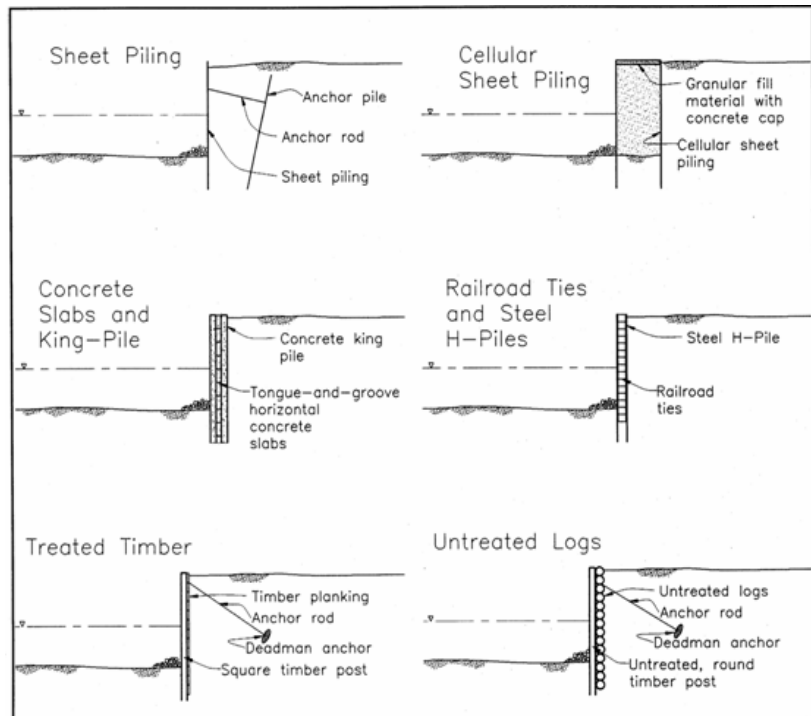


Figure 7.11 Typical Bulkhead Types (USACE, 2003)

Check Dams

Check dams, a type of grade control structure, are small dams constructed across an influent, intermittent stream, or drainageway to reduce channel erosion by restricting flow velocity. They can serve as emergency or temporary measures in small eroding channels that will be filled or permanently stabilized at a later date. Check dams can be installed in eroding gullies as permanent measures that fill up with sediment over time. In permanent usage, when the impounded area is filled, a relatively level surface or delta is formed over which water flows at a noneroding gradient. The water then cascades over the dam through a spillway onto a hardened apron. A series of check dams may be constructed along a stream channel of comparatively steep slope or gradient to create a channel consisting of a succession of gentle slopes with cascades in between.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Check dams can be nonporous (constructed from concrete, sheet steel, or wet masonry) or porous (using available materials such as straw bales, rock, brush, wire netting, boards, and posts). Porous dams release part of the flow through the structure, decreasing the head of flow over the spillway and the dynamic and hydrostatic forces against the dam. Nonporous dams are durable, permanent, and more expensive, while porous dams are simpler, more economical to construct, and temporary. Maintenance of check dams is important, especially the areas to the sides of the dam. Regular inspections, particularly after high flow events, should be performed to observe and repair erosion at the sides of the check dams. Excessive erosion could dislodge the check dam, create additional channel erosion, and add more sediment to the streambed.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Check Dams*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-4.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Check Dam*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.3_check_dam.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Check Dam*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/water/erosion/checkdam.pdf>.
- SMRC. No date. *Stream Restoration: Grade Control Practices*. The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/grade_control.htm.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Check Dams*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/cd.pdf.

Coconut Fiber Roll

The coconut fiber roll technique consists of cylindrical structures composed of coconut husk fibers held together with twine woven from coconut material (Figures 7.12 and 7.13). The fiber rolls are typically manufactured in 12-inch diameters and lengths of 20 feet, which serves to protect slopes from erosion, trap sediment, and as a result, encourage plant growth within the fiber roll. The system is typically installed near the toe of the streambank with dormant cuttings and rooted plants inserted into holes cut into the fiber rolls. Once installed, the system provides a good substrate for promoting plant growth and is appropriate where short-term moderate toe stabilization is needed. Installation of this design requires minimal site disturbance and is ideal for sites that are especially sensitive to disturbance. A limitation of this system is that it cannot withstand high velocities or large ice buildup, and it can be fairly expensive to construct. Coconut fiber rolls have an effective life of 6 to 10 years. In some locations, similar and abundant locally available materials, such as corn stalks, are being used instead of coconut materials (FISRWG, 1998).

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on coconut rolls in a technical note (*Coir Geotextile Roll and Wetland Plants for Streambank Erosion Control*), which is available at <http://el.ercd.usace.army.mil/elpubs/pdf/sr04.pdf>.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Fiber Rolls*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-5.pdf>.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Coconut Fiber Rolls*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/coconut_fiber.pdf.

<p>Channelization</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Physical & chemical <input checked="" type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input checked="" type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory



Figure 7.12 Coconut Fiber Roll
(Montgomery Watson, 2001)

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Coconut Fiber Roll*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/coconutfiberroll.pdf>.

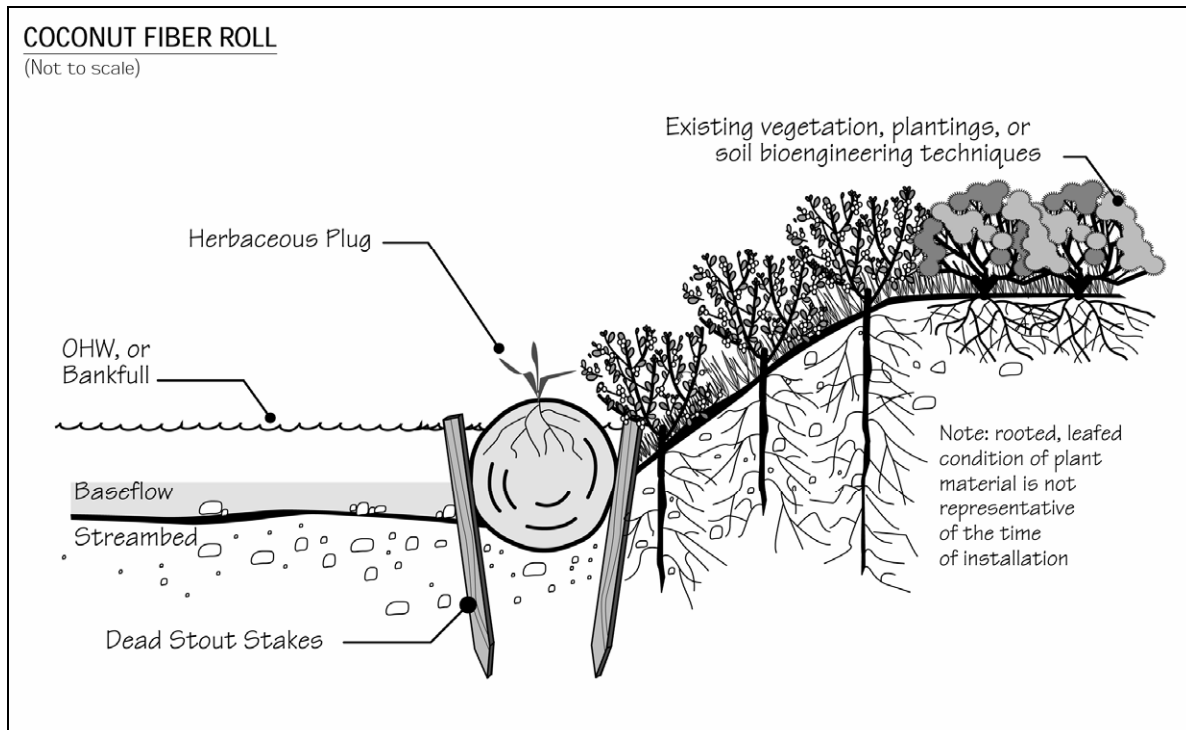


Figure 7.13 Coconut Fiber Roll (USDA-FS, 2002)

Collection Systems

Collection systems involve capture of fish by screening and/or netting followed with transport by truck or barge to a downstream location. Since the late 1970s, the USACE has successfully implemented a program that takes juvenile salmon from the uppermost dams in the Columbia River system (Pacific Northwest) and transports them by barge or truck to below the last dam. The program improves the travel time of fish through the river system, reduces most of the exposure to reservoir predators, and eliminates the mortality associated with passing through a series of turbines (van der Borg and Ferguson, 1989). Survivability rates for the collected fish are in excess of 95 percent, as opposed to survival rates of about 60 percent when the fish remain in the river system and pass through the dams (Dodge, 1989). However, the collection efficiency can range from 70 percent to as low as 30 percent. At the McNary Dam on the Columbia River, spill budgets are also implemented to improve overall passage (discussed in greater detail below) when the collection rate achieves less than 70 percent efficiency (Dodge, 1989).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
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- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resource

- Chelan County Public Utility District. No date. *Juvenile Fish Bypass*. <http://www.chelanpud.org/juvenile-fish-passage.html>.

Construct Runoff Intercepts

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet or protected drainage system. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice can be used if there is a potential for erosion along the slope.

Earth dikes, perimeter dikes or swales, or diversions can intercept and convey runoff from above disturbed areas to undisturbed areas or drainage systems. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 2003). These practices can intercept flow from denuded areas or newly seeded areas and keep clean runoff away from disturbed areas. The structures can be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 2003).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Earth Dikes and Drainage Swales*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-9.pdf>.
- Fifield, J. 2000. *Design and Implementation of Runoff Control Structures: Diversion Dikes and Swales*. http://www.forester.net/ec_0001_design.html#diversion.
- Lake Superior/Duluth Streams. 2005. *Grassed Swales*. <http://www.duluthstreams.org/stormwater/toolkit/swales.html>.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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Erosion

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- Planning & regulatory

Constructed Spawning Beds

When a dam adversely affects the aquatic habitat of an anadromous fish species, one option may be to construct replacement spawning beds. Additional facilities such as electric barriers, fish ladders, or bypass channels would be required to channel the fish to these spawning beds.

Merz et al., (2004) tested whether spawning bed enhancement increases survival and growth of Chinook salmon (*Oncorhynchus tshawytscha*) embryos in a regulated stream with a gravel deficit. The authors also examined a dozen physical parameters correlated with spawning sites (e.g., stream velocity, average turbidity, distance from the dam) and how they predicted survival and growth of Chinook salmon and steelhead (*Oncorhynchus mykiss*). The results suggest that spawning bed enhancement can improve embryo survival in degraded habitat. Measuring observed physical parameters before and after spawning bed manipulation can also accurately predict benefits. The National Oceanic and Atmospheric Administration's (NOAA's) *Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California* (1998) states that artificial spawning beds for ocean-type Chinook salmon operated near three different dams was discontinued because of high pre-spawning mortality in adult fish and poor egg survival in the spawning beds. Success of constructed spawning beds in increasing survival and development of fish varies and often depends on the site.

Channelization

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- Instream/riparian restoration

Dams

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Erosion

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- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Construction Management

Construction areas can be managed properly to control erosion by stabilizing entrances and proper traffic routing. A construction entrance is a pad of gravel or rock over filter cloth located where traffic enters and leaves a construction site. As construction vehicles drive over the gravel, mud and sediment are collected from the vehicles' wheels. To maximize effectiveness, the rock pad should be at least 50 feet long and 10 to 12 feet wide. The gravel should be 1- to 2-inch aggregate 6 inches deep laid over a layer of filter fabric. Maintenance might include pressure washing the gravel to remove accumulated sediment and adding more rock to maintain thickness. Runoff from this entrance should be treated before exiting the site. This practice can be combined with a designated truck wash-down station to ensure sediment is not transported off-site.

Channelization

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- Planning & regulatory

Where possible, construction traffic should be directed to avoid existing or newly planted vegetation. Instead, it should be directed over areas that must be disturbed for other construction activity. This practice reduces the net total area that is cleared and susceptible to erosion.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Stabilized Construction Entrance/Exit*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/TR-1.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Stabilized Construction Entrance*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/construction/3.14_stabilized_entrance.pdf.

Dormant Post Plantings

Dormant post plantings include planting of either cottonwood, willow, poplar, or other sprouting species embedded vertically into streambanks to increase channel roughness, reduce flow velocities near the slope face, and trap sediment (Figure 7.14). Dormant posts are made up of large cuttings installed in streambanks in square or triangular patterns. Live posts should be 7 to 20 feet long and 3 to 5 inches in diameter. This method is effective for quickly establishing riparian vegetation particularly in arid regions. By decreasing near bank flow velocities, this design causes sediment deposition and reduces streambank erosion. This design is more resistant to erosion than live staking or similar designs that use smaller cuttings. Success of this design is most likely on streambanks that are not gravel dominated and where ice build up is not common. The exclusion of certain herbivores aids in the success of this design. This method should be combined with other soil bioengineering techniques to achieve a comprehensive streambank restoration design (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Dormant Post Plantings*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/dormant_post.pdf.

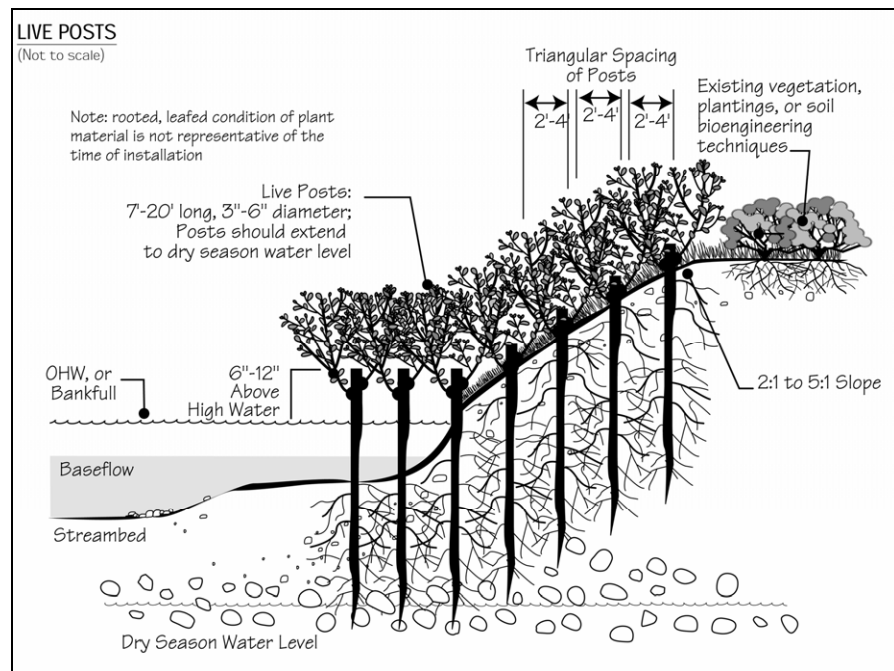


Figure 7.14 Live Posts (USDA-FS, 2002)

Encourage Drainage Protection

A complete understanding of watershed protection should include the implementation of practices that guide future development and land use activities. This will not only help to identify existing sources of NPS pollution but also to prevent future impairments that may impact dam construction or operations and reservoir management. Watershed protection practices can include zoning for natural resource protection. Several zoning techniques are:

- Use cluster zoning and planned unit development
- Consider resource protection zones
- Practice performance-based zoning
- Establish overlay zones
- Establish bonus or incentive zoning
- Consider large lot zoning
- Practice agricultural protection zoning
- Use watershed-based zoning
- Delineate urban growth boundaries

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Erosion

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- Vegetative
- Structural
- Integrated
- Planning & regulatory

More details about these techniques and case studies can be found in *Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region* (Chesapeake Bay Program, 1997).

Equipment Runoff Control

During construction and maintenance activities at dams, equipment and machinery can be a potential source of pollution to the surface and ground water. Thinners or solvents should not be discharged into sanitary or storm sewer systems or into surface water systems, when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes or steam cleaning. Equipment-washing detergents can be used and wash water appropriately discharged. Small parts should be cleaned with degreasing solvents that can be reused or recycled. Washout from concrete trucks should never be dumped directly into surface waters or into a drainage leading to surface waters but can be disposed of into:

- A designated area that will later be backfilled
- An area where the concrete wash can harden, can be broken up, and can then be appropriately disposed
- A location not subject to surface water runoff and more than 50 feet away from a receiving water

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Erosion and Sediment Control (ESC) Plans

ESC plans are important for controlling the adverse impacts of dam construction. ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development. ESC plans also provide for prevention of erosion and sediment problems and accountability if a problem occurs (MDEP, 1990). In many municipalities, ESC plans are required under ordinances enacted to protect water resources. These plans describe the activities construction and maintenance personnel will use to reduce soil erosion and contain and treat runoff that is carrying eroded sediments. ESC plans typically include descriptions and locations of soil stabilization practices, perimeter controls, and runoff treatment facilities that will be installed and maintained before and during construction activities. In addition to special area considerations, the full ESC plan review inventory should include:

- Topographic and vicinity maps
- Site development plan
- Construction schedule
- Erosion and sedimentation control plan drawings
- Detailed drawings and specifications for practices
- Design calculations
- Vegetation plan
- Detailed drawings and specifications for control or management practices

Some erosion and soil loss is unavoidable during land-disturbing activities. Although proper siting and design help prevent areas prone to erosion from being developed, construction activities invariably produce conditions where erosion can occur. To reduce the adverse impacts associated with construction activities at dams, the construction management measure suggests a system of nonstructural and structural ESCs for incorporation into an ESC plan.

Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control erosion and sediment movement. Brown and Caraco (1997) identified several general objectives that should be addressed in an effective ESC plan:

- *Minimize clearing and grading* – clearing and grading should occur only where absolutely necessary to build and provide access to structures and infrastructure. Clearing should be done immediately before construction, rather than leaving soils exposed for months or years (SQI, 2000).
- *Protect waterways and stabilize drainage ways* – all natural waterways within a development site should be clearly identified before construction activities begin. Clearing should generally be prohibited in or adjacent to waterways. Sediment control

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- Vegetative
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practices such as check dams might be needed to stabilize drainage ways and retain sediment on-site.

- *Phase construction to limit soil exposure* – construction phasing is a process where only a portion of the site is disturbed at any one time to complete the required building in that phase. Other portions of the site are not cleared and graded until exposed soils from the earlier phase have been stabilized and the construction nearly completed.
- *Stabilize exposed soils immediately* – seeding or other stabilization practices should occur as soon as possible after grading. In colder climates, a mulch cover is needed to stabilize the soil during the winter months when grass does not grow or grows poorly.
- *Protect steep slopes and cuts* - wherever possible, clearing and grading of existing steep slopes should be completely avoided. If clearing cannot be avoided, practices should be implemented to prevent runoff from flowing down slopes.
- *Install perimeter controls to filter sediments* – perimeter controls are used to retain sediment-laden runoff or filter it before it exits the site. The two most common perimeter control options are silt fences and earthen dikes or diversions.
- *Employ advanced sediment-settling controls* – traditional sediment basins are limited in their ability to trap sediments because fine-grained particles tend to remain suspended and the design of the basin themselves is often simplistic. Sediment basins can be designed to improve trapping efficiency through the use of perforated risers; better internal geometry; the installation of baffles, skimmers, and other outlet devices; gentler side slopes; and multiple-cell construction.

ESC plans ensure that provisions for control measures that are incorporated into the site planning stage of development help to reduce the incidence of erosion and sediment problems, and improve accountability if a problem occurs. An effective plan for runoff management on construction sites controls erosion, retains sediments on-site to the extent practicable, and reduces the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989).

ESC plans should be flexible to account for unexpected events that occur after the plans have been approved, including:

- Discrepancies between planned and as-built grades
- Weather conditions
- Altered drainage
- Unforeseen construction requirements

Changes to an ESC plan should be made based on regular inspections that identify whether the ESC practices were appropriate or properly installed or maintained. Inspecting an ESC practice after storm events shows whether the practice was installed or maintained properly. Such inspections also show whether a practice requires cleanout, repair, reinforcement, or replacement with a more appropriate practice. Inspecting after storms is the best way to ensure that ESC practices remain in place and effective at all times during construction activities.

Because funding for ESC programs is not always dedicated, budgetary and staffing constraints may thwart effective program implementation. Brown and Caraco (1997) recommend several management techniques to ensure that ESC programs are properly administered:

- Local leadership committed to the ESC program
- Redeployment of existing staff from the office to the field or training room
- Cross-training of local review and inspection staff
- Submission of erosion prevention elements for early planning reviews.
- Prioritization of inspections based on erosion risk
- Requirement of designers to certify the initial installation of ESC practices
- Investment in contractor certification and private inspector programs
- Use of public-sector construction projects to demonstrate effective ESC controls
- Enlistment of the talents of developers and engineering consultants in the ESC program
- Revision and update of the local ESC manual

An allowance item that acts as an additional “insurance policy” for complying with the erosion and sediment control plan can be added to bid or contract documents (Deering, 2000a). This allowance covers costs to repair storm damage to ESC measures as specified in the ESC plan. This allowance does not cover storm damage to property that is not related to the ESC plan, because this would be covered under traditional liability insurance. Damage caused by severe and continuous rain events, windblown objects, fallen trees or limbs, or high-velocity, short-term rain events on steep slopes and existing grades would be covered by the allowance, as would deterioration from exposure to the elements or excessive maintenance for silt removal. The contractor is responsible for being in compliance with the ESC plan by properly implementing and maintaining all specified measures and structures. The allowance does not cover damage to practices caused by improper installation or maintenance.

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Infiltration Basin and Trench*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/4.1_infiltration.pdf.
- Milwaukee River Basin Partnership. 2003. *Detention & Infiltration Basins*. <http://clean-water.uwex.edu/plan/drbasins.htm>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Erosion Control Blankets

Turf reinforcement mats (TRMs) combine vegetative growth and synthetic materials to form a high-strength mat that helps prevent soil erosion in drainage areas and on steep slopes (Figure 7.15) (USEPA, 1999). TRMs enhance vegetation's natural ability to protect soil from erosion. They are composed of interwoven layers of nondegradable geosynthetic materials (e.g., nylon, polypropylene) stitched together to form a three-dimensional matrix. They are thick and porous enough to allow for soil filling and retention. In addition to providing scour protection, the mesh netting of TRMs is designed to enhance vegetative root and stem development. By protecting the soil from scouring forces and enhancing vegetative growth, TRMs can raise the threshold of natural vegetation to withstand higher hydraulic forces on stabilization slopes, streambanks, and channels. In addition to reducing flow velocities, natural vegetation removes particulates through sedimentation and soil infiltration and improves site aesthetics. In general, TRMs should not be used for the following:

- To prevent deep-seated slope failure due to causes other than surficial erosion
- If anticipated hydraulic conditions are beyond the limits of TRMs and natural vegetation
- Directly beneath drop outlets to dissipate impact force (can be used beyond impact zone)
- Where wave height might exceed 1 foot (can protect areas upslope of wave impact zone)

The performance of a TRM-lined conveyance system depends on the duration of the runoff event. For short-term events, TRMs are typically effective at flow velocities of up to 15 feet per second and shear stresses of up to 8 lb/ft². However, specific high-performance TRMs may be effective under more severe hydraulic conditions. Practitioners should check with manufacturers for specifications and performance limits of different products. Factors influencing the cost of TRMs include the type of material required, site conditions (e.g., underlying soils, slope steepness), and installation-specific factors (e.g., local construction costs). TRMs typically cost considerably less than concrete and riprap solutions.

<p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory



Figure 7.15 Erosion Control Blanket
(Conwed Fibers, n.d.)

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.
- CASQA. 2003. *California Stormwater BMP Construction Handbook: Geotextiles and Mats*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-7.pdf>.
- California Department of Transportation. 1999. *Soil Stabilization Using Erosion Control Blankets*. Construction Storm Water Pollution Prevention Bulletin. Vol. 3, No. 8. California Department of Transportation, Division of Environmental Analysis, Sacramento, CA. http://www.dot.ca.gov/hq/env/stormwater/publicat/const/Aug_1999.pdf.
- Matthews, M. 1998. *What are RECPs? Soil Stabilization Using Erosion Control Blankets*. Erosion Control Technology Council, St. Paul, MN. <http://www.ectc.org/what.html>.
- North American Green. 2004. *Green Views: Turn Reinforcement Mats as an Alternative to Rock Riprap*. North American Green, Evansville, IN. http://www.nagreen.com/resources/literature/GV_AltToRockRiprap.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices: Erosion Control Blanket/Matting*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Establish and Protect Stream Buffers

Riparian buffers and wetlands can provide long-term pollutant removal capabilities without the comparatively high costs usually associated with constructing and maintaining structural controls. Conservation or preservation of these areas is important to water quality protection. Land acquisition programs help to preserve areas considered critical to maintaining surface water quality. Adequate buffer strips along streambanks provide protection for stream ecosystems, help stabilize the stream, and can prevent streambank erosion (Holler, 1989). Buffer strips can also protect and maintain near-stream vegetation that attenuates the release of sediment into stream channels. Levels of suspended solids have been shown to increase at a slower rate in stream channel sections with well-developed riparian vegetation (Holler, 1989).

Channelization

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Dams

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Stream buffers should be protected and preserved as a conservation area because these areas provide many important functions and benefits, including:

- Providing a “right-of-way” for lateral movement
- Conveying floodwaters
- Protecting streambanks from erosion
- Treating runoff and reducing drainage problems from adjacent areas
- Providing nesting areas and other wildlife habitat functions
- Mitigating stream warming
- Protecting wetlands
- Providing recreational opportunities and aesthetic benefits
- Increasing adjacent property values

Specific stream buffer practices could include:

- Establishing a stream buffer ordinance
- Developing vegetative and use strategies within management zones
- Establishing provisions for stream buffer crossings
- Integration of structural runoff management practices where appropriate
- Developing stream buffer education and awareness programs

More information on establishing and protecting stream buffers is available from EPA’s *National Management Measures to Control Nonpoint Source Pollution from Urban Areas*,⁴ a document for use by state, local, and tribal managers in the implementation of nonpoint source pollution management programs. It contains a variety of practices and management activities for reducing pollution of surface and ground water from urban areas (USEPA, 2005d).

⁴ <http://www.epa.gov/owow/nps/urbanmm/index.html>

Fish Ladders

Fish ladders have been a commonly used structure to enable the safe upstream and downstream passage of mature fish (see Figure 7.16). There are four basic designs: pool-weir, Denil, vertical slot, and steeppass.

Pool-weir fish ladders are one of the oldest and most commonly designed fish passage structures, which consists of stepped pools and weirs that allow fish to pass from pool to pool over the weirs that separate each. Pool-weir fish ladders are normally used on slopes of about 10-degrees. Some pool-weir fish ladders can be modified to increase the possible number of fish that are passed by including submerged orifices that allow fish to pass the fish ladder without cresting the weirs.

Pool-weir fish ladders will pass many different species of fish if they are designed correctly for the environment in which they are employed. OTA (1995) provides details on design and operation of various forms of fish ladders.

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Figure 7.16 Fish Ladder at Feather River Hatchery, Oroville Dam, CA (Feather River, n.d.)

Denil fish ladders are elongated rectangular channels that use internal baffles to dissipate flow energy and allow fish passage. They are widely used in the eastern United States due to their ability to pass a wide range of species (from salmonids to riverine) over a wider range of flows than pool-weir ladders. Denil ladders can be used on slopes from 10 to 25 degrees although 10 to 15 degrees is optimal. Most Denil fish ladders are 2–4 feet wide and 4–8 feet deep. This fish ladder design allows fish to pass at a preferred depth instead of through a jumping action. Denil ladders do not have resting areas and therefore fish must either be able to pass the ladder in one burst or resting pools must be provided between sections. Resting pools should be provided every 16 to 50 feet depending upon the species being passed. The high flow rates and turbulence

associated with Denil fish ladders reduces the demand for attraction flow, which is commonly added to insure good attraction over varying flow rates.

Vertical slot fish ladders are elongated rectangular channels that use regularly spaced baffles to create steps and resting pools. The vertically oriented slots in the baffles allow fish to pass through the ladder at a preferred depth. Unlike Denil fishways, vertical slot fishways provide a resting area behind each baffle allowing fish to pass in a “burst-rest” manner instead of one sustained motion. The channel created by the baffles is off-center making the baffles on one side of the ladder wider than the opposing side. Eddies that form behind longer baffles allow fish to rest and end the need for resting areas. Although vertical slot ladders are usually operated at slopes of about 10 degrees, they can be operated over a larger variety of flows. The vertical slots create a water jet that is regulated by the pool on the downstream side of it. This creates a uniform, level flow throughout the ladder.

The steppass fish ladder, often referred to as the “Alaska steppass,” is a modified Denil fish ladder most commonly used in remote areas for the passage of salmonids. Steppass fish ladders are usually constructed of lightweight materials such as aluminum and can operate on slopes up to 33 percent. The construction materials and design allow this type of fish ladder to be deployed as a single unit to remote areas. The baffles used in steppass ladders are more aggressively designed, which allow the ladder to more effectively control water flow. The steppass ladder is not without its limitations. Due to their narrow design, steppass ladders are more susceptible to clogging due to debris and changes in flow upstream or downstream of the ladder.

Although fish ladders can be extremely efficient at passing fish, small changes in design have been shown to significantly improve their functionality. A good example of this is the John Day Dam located on the Columbia River. The original design focused on the passage of salmonids and therefore only passed about 17 percent of the American shad (*Alosa sapidissima*) using the ladder. Research indicated that simple design changes could allow for the passage of riverine species such as American shad. By changing the placement of the weirs within the fish ladder, the fish ladder was able to pass 94 percent of the salmonids, and American shad passage increased to 74 percent (Monk et al., 1989).

According to the USACE, Portland District (1997), the success rate for adults negotiating fish ladders at dams in the Columbia River Basin is about 95 percent. The U.S. Fish and Wildlife Agency designs fishways assuming a 90 percent efficiency rate. Few studies document actual efficiency of fish ladders, but it is recognized that not all fishways are equally effective (for various reasons, such as predation or physical damage to passing fish). Some fishways installed in the last 20 years are less effective than newer ones (when federal licenses began to include fish passage requirements). Maine Department of Marine Resources (DMR) estimates efficiency between 75 and 90 percent (Presumpscot River Plan Steering Committee, 2002).

Additional Resource

- Michigan DNR. No date. *What is a fish ladder?* Michigan Department of Natural Resources, Lansing, MI. http://www.michigan.gov/dnr/0,1607,7-153-10364_19092-46291--,00.html.

Fish Lifts

Fish lifts describe both fish elevators and locks, which are used to capture fish at the downstream side of a structure and then move them above the structure. Like fish ladders, these systems require sufficient attraction flow to move fish into the lift area. Lift systems can be advantageous because they are not species or flow specific. They can also be employed at structures too tall for fish ladders and to pass species with reduced swimming ability.

Lift systems have the potential to move large numbers of fish if they are operated efficiently. These systems can be automated to allow operation much like fish ladders. Fish lift systems do require additional operation and maintenance costs and are subject to mechanical failures not associated with fish ladders.

Most lift systems require either an active or passive bypass system to move fish far enough upstream to avoid entrainment in the flow through the dam. Passive bypass systems may include constructed waterways or pipes that discharge passed fish sufficiently up-stream of the structure. Active bypass systems include trucking and pumping operations that discharge the fish safely upstream of the structure. Active bypass systems, especially pumping systems, have come under scrutiny for fish behavior and health reasons. During the pumping process, fish may be subject to descaling and/or death due to overcrowding. After release, the fish may have orientation problems and therefore be subject to higher rates of predation mortality. Due to these concerns the United States Fish and Wildlife service has generally opposed the use of fish pumps (OTA, 1995).

Channelization

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- Vegetative
- Structural
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Flow Augmentation

Operational procedures such as flow regulation, flood releases, or fluctuating flow releases all have the potential for detrimental impacts on downstream aquatic and riparian habitat. When evaluating solutions associated with degraded aquatic and riparian habitat, stakeholders must balance operational procedures to address the needs of downstream aquatic and riparian habitat with the requirements of dam operation. There are often legal and jurisdictional requirements for an operational procedure at a particular dam that should also be considered (USDOI, 1988).

A flushing flow is a high-magnitude, short-duration release for the purpose of maintaining channel capacity and the quality of instream habitat by scouring the accumulation of fine-grained sediments from the streambed. Availability of suitable instream habitat is a key factor limiting spawning success. Flushing flows wash away the sediments without removing the gravel. Flushing flows also prevent the encroachment of riparian vegetation.

However, it is important to keep in mind that flushing flows are not recommended in all cases. Flushing flows of a large magnitude may cause flooding in the old floodplain or depletion of gravel below a dam. Flushing flows are more efficient and predictable for small, shallow, high-velocity mountain streams unaltered by dams, diversions, or intensive land use. Routine maintenance generally requires a combination of practices including high flows coupled with sediment dams or channel dredging, rather than simply relying on flushing or scouring flows (Nelson et al., 1988).

Several options exist for creating minimum flows in the tailwaters below dams. The selection of any particular technique as the most cost-effective is site-specific and depends on several factors including adequate performance to achieve the desired instream and riparian habitat characteristic, compatibility with other requirements for operation of the hydropower facility, availability of materials, and cost.

Sluicing is the practice of releasing water through the sluice gate rather than through the turbines. For portions of the waterway immediately below the dam, the steady release of water by sluicing provides minimum flows with the least amount of water expenditure. At some facilities, this practice may dictate that modifications be made to the existing sluice outlets to maintain continuous low releases. Continuous low-level sluice releases at Eufala Lake and Fort Gibson Lake (Oklahoma) provided minimum flows needed to sustain downstream fish populations. The sluicing also had the benefit of improving DO levels in tailwaters downstream of these two dams such that fish mortalities, which had been experienced in the tailwaters below these two dams prior to initiating this practice, no longer occurred (USDOE, 1991).

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Turbine pulsing is a practice involving the release of water through the turbines at regular intervals to improve minimum flows. In the absence of turbine pulsing, water is released from large hydropower dams only when the turbines are operating, which is typically when the demand for power is high.

A study undertaken at the Douglas Dam (French Broad River, Tennessee) suggests some of the site-specific factors that should be considered when evaluating the advantages of practices such as turbine pulsing, sluicing, or other alternatives for providing minimum flows and improving dissolved oxygen (DO) levels in reservoir releases. Two options for maintaining minimum flows (turbine pulsing and sluicing), and two aeration alternatives (operation of surface water pumps and diffusers) were evaluated for their effectiveness, advantages, and disadvantages in providing minimum flows and aeration of reservoir releases. Computer modeling indicated that either turbine pulsing or sluicing could improve DO concentrations in releases by levels ranging from 0.7 to 1.5 mg/L. This is slightly below the level of improvement that might be expected from operation of a diffuser system for aeration. A trade-off can also be expected at this facility between water saved by frequent short-release pulses and the higher maintenance costs due to operating turbines on and off frequently (Hauser et al., 1989). Hauser et al. (1989) found that schemes of turbine pulsing ranging from 15-minute intervals to 60-minute intervals every 2 to 6 hours were found to provide fairly stable flow regimes after the first 3 to 8 miles downstream at several Tennessee Valley Authority (TVA) projects. However, at points farther downstream, less overall flow would be produced by sluicing than by pulsing. Turbine pulsing may also cause waters to rise rapidly, which could endanger people wading or swimming in the tailwaters downstream of the dam (TVA, 1990).

Fuel and Maintenance Staging Areas

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Vehicles need to be inspected for leaks. To prevent runoff, fuel and maintain vehicles on site only in a bermed area or over a drip pan. Fuel tanks should be protected and have containment systems. Stream crossings can be minimized through proper planning of access roads. This will help to keep potential sources of pollution away from direct contact with surface waters.

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Gated Conduits

Gated conduits are hydraulic structures that divert the flow of water under the dam. They are designed to create turbulent mixing to enhance oxygen transfer. Gates are used to control the cross-sectional area of flow. Gated conduits have been extensively analyzed for their performance and effectiveness (Wilhelms and Smith, 1981), although the available data are mostly from high-head projects (Wilhelms, 1988). An example of the effectiveness found that gated conduit structures were able to achieve 90 percent aeration and a minimum DO standard of 5 mg/L (Wilhelms and Smith, 1981).

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 - Planning & regulatory

Groins

Groins are structures that are built perpendicular to the shore and extend into the water. Examples of possible planform shapes for groins are illustrated in Figure 7.17. They are generally constructed in series, referred to as a groin field, along the entire length of shore to be protected. Groins trap sand in littoral drift and halt its longshore movement along beaches. The sand trapped by each groin acts as a protective barrier that waves can attack and erode without damaging previously unprotected upland areas. Unless the groin field is artificially filled with sand from other sources, sand is trapped in each groin by interrupting the natural supply of sand moving along the shore in the natural littoral drift. This frequently results in an inadequate natural supply of sand to replace the sand carried away from beaches located farther along the shore in the direction of the littoral drift. If “downdrift” beaches are kept starved of sand for long periods of time, severe beach erosion in unprotected areas can result. As with bulkheads and revetments, the most durable materials for construction of groins are timber and stone. Less expensive techniques for building groins use sand- or concrete-filled bags or tires. It must be recognized that the use of lower-cost materials in the construction of bulkheads, revetments, or groins frequently results in less durability and reduced project life. Figure 7.18 illustrates transition from a groin field to a natural shoreline.

- | |
|--|
| <p>Channelization</p> <ul style="list-style-type: none"> <input type="checkbox"/> Physical & chemical <input type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Streambanks <input checked="" type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input checked="" type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
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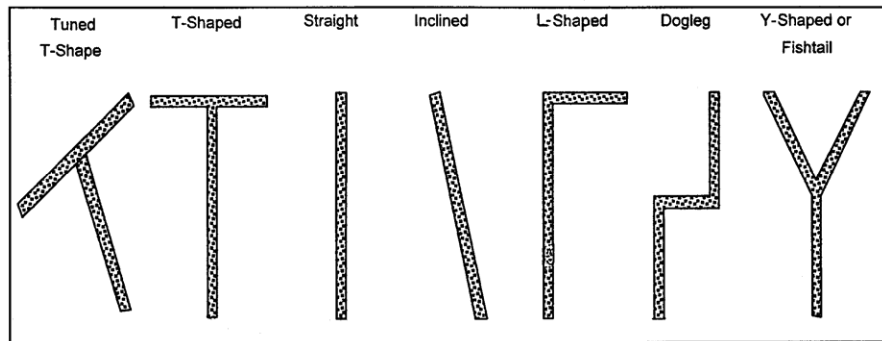


Figure 7.17 Possible Planform Shapes for Groins (USACE, 2003)

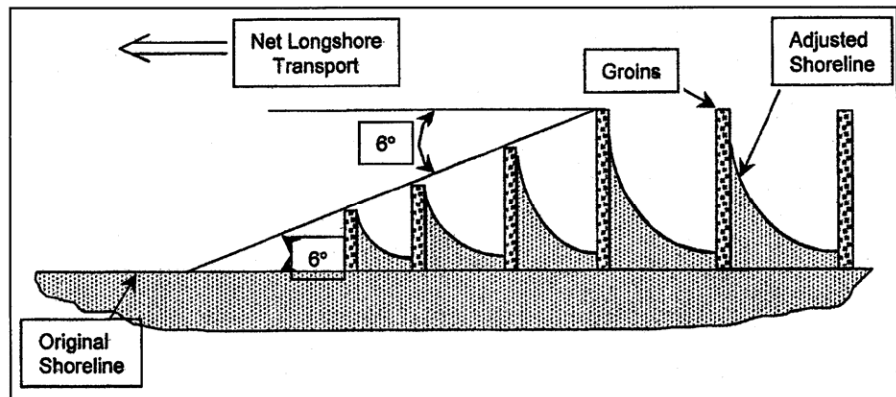


Figure 7.18 Transition from Groin Field to Natural Shoreline (USACE, 2003)

Additional Resource

- USACE. No date. *Groins*. U.S. Army Corps of Engineers, Coastal & Hydraulics Laboratory. <http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES!188>.

Identify and Address NPS Contributions

Another watershed protection practice involves the evaluation of the total NPS pollution contributions in the watershed. NPS contributions can stem from different land use activities upstream from a dam. For example, the analysis and interpretation of stereoscopic color infrared aerial photographs can be used to find and map specific areas of concern where a high probability of NPS pollution exists from septic tank systems, animal wastes, soil erosion, and other similar types of NPS pollution (TVA, 1988). Other remote sensing techniques, such as analysis of satellite imagery, can be used to map areas of concern within a watershed. Historically, TVA has used analysis of aerial photography images to survey about 25 percent of the Tennessee Valley to identify sources of nonpoint pollution in a period of less than 5 years at a cost of a few cents per acre (TVA, 1988). Modern geographic information systems (GIS) enable watershed planners and modelers to rapidly assess large watersheds in a cost-effective manner.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

The development of Total Maximum Daily Loads (TMDLs) in watersheds with impaired waterbodies is a way to identify all sources of pollution. TMDLs are planning documents that provide load allocations, for both point and nonpoint sources, and identify potential contributions of pollutants to an impaired waterbody. TMDLs often include the involvement of stakeholders throughout the watershed, in not only the development, but also with implementation of specific activities within the watershed. TMDL documents can provide a plan for addressing pollution sources throughout a watershed.

Different practices can be used to control NPS pollution once sources have been identified. These practices may include the following:

Soil Erosion Control

Soil erosion has been determined to be the major source of suspended solids, nutrients, organic wastes, pesticides, and sediment that combined form the most problematic form of NPS pollution (TVA, 1988). Soil erosion and runoff controls have been addressed throughout earlier management measures in this document.

Mine Reclamation

Abandoned mines may have the potential to contribute significant sediment, metals, acidified water, and other pollutants to reservoirs (TVA, 1988). Old mines need to be located and reclaimed to reduce NPS pollutants emanating from them. Revegetation is a cost-effective method of reclaiming denuded strip-mined lands, and agencies such as the Natural Resource Conservation Service (NRCS) can provide technical insight for revegetation practices.

Animal Waste Control

A major contributor to reservoir pollution in some watersheds is waste from animal confinement facilities. TVA (1988) estimated that in the Tennessee Valley, farms produced about six times the organic wastes of the population of the valley. EPA also has available the *National Management Measures to Control Nonpoint Source Pollution from Agriculture*,⁵ which is a technical guidance and reference document for use by state, local, and tribal managers in the implementation of NPS pollution management programs. It contains information on a variety of practices and management strategies for reducing pollution of surface and ground water from agriculture (USEPA, 2003b).

Correcting Failing Septic Systems

The objective of this practice is to protect waterbodies from pollutants discharged by onsite sewage disposal systems (OSDS). They should be sited, designed, and installed so that impacts to waterbodies will be reduced to the extent practicable. Factors such as soil type, soil depth, depth to water table, rate of sea level rise, and topography should be considered. The installation of OSDS should be prevented in areas where soil absorption systems will not provide adequate treatment of effluents containing solids, phosphorus, pathogens, nitrogen, and nonconventional pollution prior to entry into surface waters and ground water. Setbacks, separation distances, and maintenance requirements should be established.

Failing septic tank or OSDS are another source of NPS pollution in reservoirs. TVA has found septic tank failures to be a problem in some of its reservoirs and has identified them through an aerial survey (TVA, 1988). Additional guidance on OSDS is available from EPA's *Onsite Wastewater Treatment Systems Manual* (EPA 625-R-00-008), which is available through EPA's National Service Center for Environmental Publications.⁶

Land Use Planning

Land use plans that establish guidelines for permissible uses of land within a watershed serve as a guide for reservoir management programs addressing NPS pollution (TVA, 1988). Watershed land use plans identify suitable uses for land surrounding a reservoir, establish sites for economic development and natural resource management activities, and facilitate improved land management (TVA, 1988). Land use plans must be flexible documents that account for the needs of the landowners, state and local land use goals, the characteristics of the land and its ability to support various uses, and the control of NPS pollution (TVA, 1988).

Comprehensive planning is an effective nonstructural tool to control NPS pollution. Where possible, growth should be directed toward areas where it can be sustained with minimal impact on the environment (Meeks, 1990). Poorly planned growth and development have the potential to degrade and destroy natural drainage systems and surface waters (Mantell et al., 1990). Proper planning and zoning decisions allow water quality managers to direct development and land disturbance away from areas that drain to sensitive waters. Land use designations and zoning laws can also be used to protect environmentally sensitive areas such as riparian corridors and wetlands.

⁵ <http://www.epa.gov/owow/nps/pubs.html>

⁶ <http://www.epa.gov/ncepihom>

Identify and Preserve Critical Areas

Protection of sensitive areas and areas that provide water quality benefits (e.g., natural wetlands and riparian areas) is integral to maintaining or minimizing the impacts of development on receiving waters and associated habitat. Without a comprehensive planning approach that includes the use of riparian buffers, open space, bioretention, and structural controls to maintain the predevelopment hydrologic characteristics of the site, significant water quality and habitat impacts are likely. The experience of various communities has shown that the use of structural controls in the absence of adequate local land use planning and zoning often does not adequately protect water quality and might even cause detrimental effects, such as increased temperature.

An initial step for incorporating targeted land conservation into a runoff management program is to identify critical conservation areas on a watershed map and superimpose this information on a tax map. Owners of potential conservation lands could include a mix of individuals, corporations or other business entities, homeowner associations, government agencies, and land trusts.

Land conservation includes more than simply preserving land in its current state. It also means that an individual or organization should take responsibility for restoration of areas of the property that are contributing to runoff problems or have been adversely affected by runoff. Stewardship activities for land conservation might include:

- Resource monitoring
- General maintenance
- Control of exotic species
- Installation of structural runoff management practices and maintenance

There are several options for landowners who would like to retain ownership of the parcel but relinquish stewardship and conservation management to another organization. These nonexclusive management options, discussed below, include establishing conservation easements, leases, deed restrictions, covenants, or transfer of development rights (TDRs).

Conservation Easements

A conservation easement is a legal agreement that transfers specific rights concerning the use of land by sale or donation to a government agency (municipal, county, or state), a qualified nonprofit organization (e.g., land trust or conservancy), or other legal entity without transferring title of the land (Cwikiel, 1996).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Leases

Even though government agencies, land trusts, and other nonprofit organizations would prefer that conservation lands be acquired by donation or that conservation easements be placed on the property, some lands hold so much value as conservation areas that leasing is worth the expense and effort. Leasing a property allows the agency, trust, or organization to actively manage the land for conservation.

Deed Restrictions

Restrictions can be included in deeds for the purpose of constraining use of the land. In theory, deed restrictions are designed to perform functions similar to those of conservation easements. In practice, however, deed restrictions have proven to be much weaker substitutes because unlike conservation easements, deed restrictions do not necessarily designate or convey oversight responsibilities to a particular agency or organization to enforce protection and maintenance provisions. Also, deed restrictions can be relatively easy to modify or vacate through litigation. Modifying or nullifying an easement is difficult, especially if tax benefits have already been realized. For these reasons, conservation easements are generally preferred over deed restrictions.

Covenants

A covenant is similar to a deed restriction in that it restricts activities on a property, but it is in the form of a contract between the landowner and another party. The term *mutual covenants* is used to describe a situation where one or more nearby or adjacent landowners are contracted and covered by the same restrictions.

Transfer of Development Rights (TDRs)

The concept of TDRs as a watershed protection tool is based on the premise that ownership of land includes a “bundle” of property rights. One of these rights is the right to develop the property to its “highest and best use.” Although this right can be restricted by zoning building codes, environmental constraints, and other types of restrictions, the basic right to develop remains. A TDR system creates an opportunity for property owners to transfer development potential or density at one property, called a sending area to another property, called a receiving area. In the context of watershed planning objectives, TDR programs can be an effective way to transfer development potential from sensitive subwatersheds to subwatersheds that can better deal with increased imperviousness.

Joint Planting

Joint planting (or vegetated riprap) involves tamping live cuttings of rootable plant material into soil between the joints or open spaces in rocks that have previously been placed on a slope (Figure 7.19). Alternatively, the cuttings can be tamped into place at the same time that rock is being placed on the slope face. Joint planting is useful where rock riprap is required or already in place. It is successful 30 to 50 percent of the time, with first year irrigation improving survival rates. Live cuttings must have side branches removed and bark intact. They should range from 0.5 to 1.5 inches in diameter and be long enough to extend well into the soil, reaching into the dry season water level. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Joint Planting*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/streambank/joint_planting.pdf.

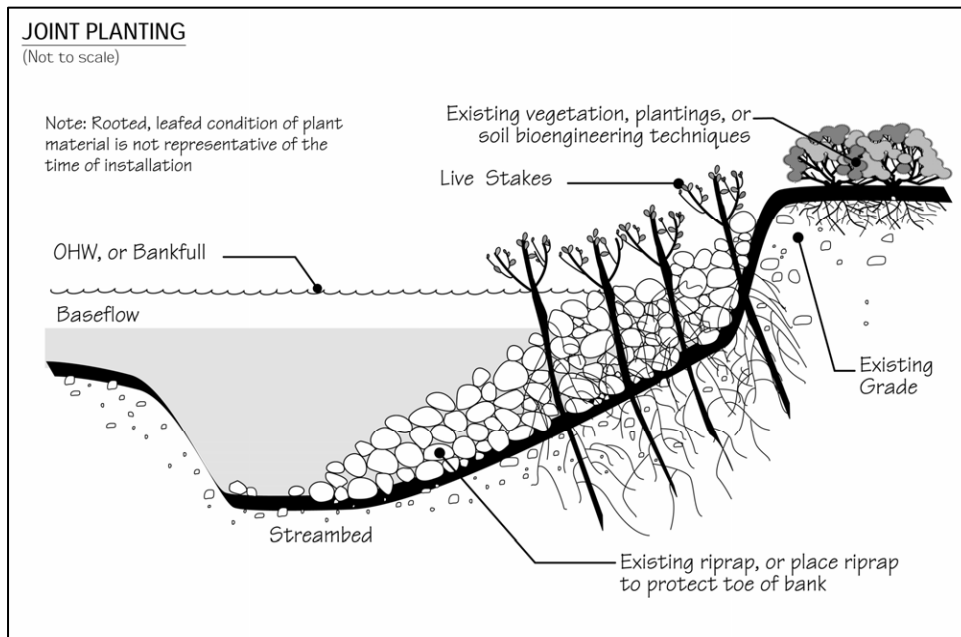


Figure 7.19 Joint Planting (USDA-FS, 2002)

Labyrinth Weir

Labyrinth weirs have extended crest length and are usually W-shaped. These weirs spread the flow out to prevent dangerous undertows in the plunge pool. A labyrinth weir at South Holston Dam (Tennessee) was constructed for the dual purpose of providing minimum flows and improving DO in reservoir releases. The weir aerates to up to 60 percent of the oxygen deficit. For instance, projected performance at the end of the summer is an increase in the DO from 3 mg/L to 7 mg/L (or an increase of 4 mg/L) (Hauser, 1992). Actual increases in the DO will depend on the temperature and the level of DO in the incoming water.

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Erosion

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Levees, Setback Levees, and Floodwalls

Many valuable techniques can be used, when applied correctly, to protect, operate, and maintain levees (Hynson et al., 1985). Evaluation of site-specific conditions and the use of best professional judgment are the best methods for selecting the proper levee protection and operation and maintenance plan. According to Hynson and others (1985), maintenance activities generally consist of vegetation management, burrowing animal control, upkeep of recreational areas, and levee repairs.

Care must be taken during construction to prevent disturbing the natural channel vegetation, cross section, or bottom slope. No immediate instream effects from sedimentation are usually caused by implementing this type of modification. The potential for long-term channel adjustments can be evaluated using methods outlined in *Channel Stability Assessment for Flood Control Projects* (USACE, 1994).

Methods to control vegetation include mowing, grazing, burning, and using chemicals. Selection of a vegetation control method should consider the existing and surrounding vegetation, desired instream and riparian habitat types and values, timing of controls to avoid critical periods, selection of livestock grazing periods, and timing of prescribed burns to be consistent with historical fire patterns. Additionally, a balance between the vegetation management practices for instream and riparian habitat and engineering considerations should be maintained to avoid structural compromise. Animal control methods are most effective when used as a part of an integrated pest management program and might include instream and riparian habitat manipulation or biological controls. Recreational area management includes upkeep of planted areas, disposal of solid waste, and repairing of facilities (Hynson et al., 1985).

The prevention of floods by dams and levees can eliminate or diminish essential ecological functions. Dams, levees and channel training structures have dramatically altered or eliminated the frequency, duration, magnitude, and timing of periodic high flows. These projects significantly reduce the likelihood of floodplain inundation, block the transfer of organic matter and nutrients between river and floodplain, block plant succession, eliminate fish access to spawning areas, and rob rivers of the erosive power to restore and create a diversity of habitats (Environmental Defense, 2002). Levees have had several impacts on the Snake River in Wyoming. Anthony (1998) found habitat losses, including changes in vegetation (including losses of cottonwood and riparian habitats from 1956) and changes in channel and floodplain complexity from a braided to a single channel pattern.

Siting of levees and floodwalls should be addressed prior to design and implementation of these types of projects. Proper siting of such structures can avoid several types of problems. First, construction activities should not disturb the physical integrity of adjacent riparian areas and/or

Channelization

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- Vegetative
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wetlands. Second, by setting back the structures (offsetting them from the streambank), the relationship between the channel and adjacent riparian areas can be preserved. Proper siting and alignment of proposed structures can be established based on hydraulic calculations, historical flood data, and geotechnical analysis of riverbank stability.

Additional Resource

- LSU AgCenter. 1999. *Floodwalls*. Louisiana State University Agricultural Center, Louisiana Cooperative Extension Service.
<http://www.louisianafloods.org/NR/rdonlyres/7A01F7C8-703B-47D1-BCCD-63CD0A57721F/2995/pub2745Floodwall6.pdf>

Live Cribwalls

A live cribwall is used to rebuild a bank in a nearly vertical setting. It consists of a hollow, box-like interlocking arrangement of untreated log or timber members (Figure 7.20). The structure is filled with suitable backfill material and layers of live branch cuttings, which root inside the crib structure and extend into the slope. Logs or untreated timbers should range from 4 to 6 inches in diameter. Lengths will vary with the size of the crib structure. Fill rock should be 6 inches in diameter. Live branch cuttings should be 0.5 to 2.5 inches in diameter and long enough to reach the back of the wooden crib structure. Once the live cuttings root and become established, the subsequent vegetation gradually takes over the structural functions of the wood members. Live cribwalls are appropriate where space is limited and at the base of a slope where a low wall may be required to stabilize the toe of the slope and to reduce its steepness. They are also appropriate above and below the water level where stable streambeds exist. They are not designed for or intended to resist large, lateral earth stress. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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- Instream/riparian restoration

Dams

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Erosion

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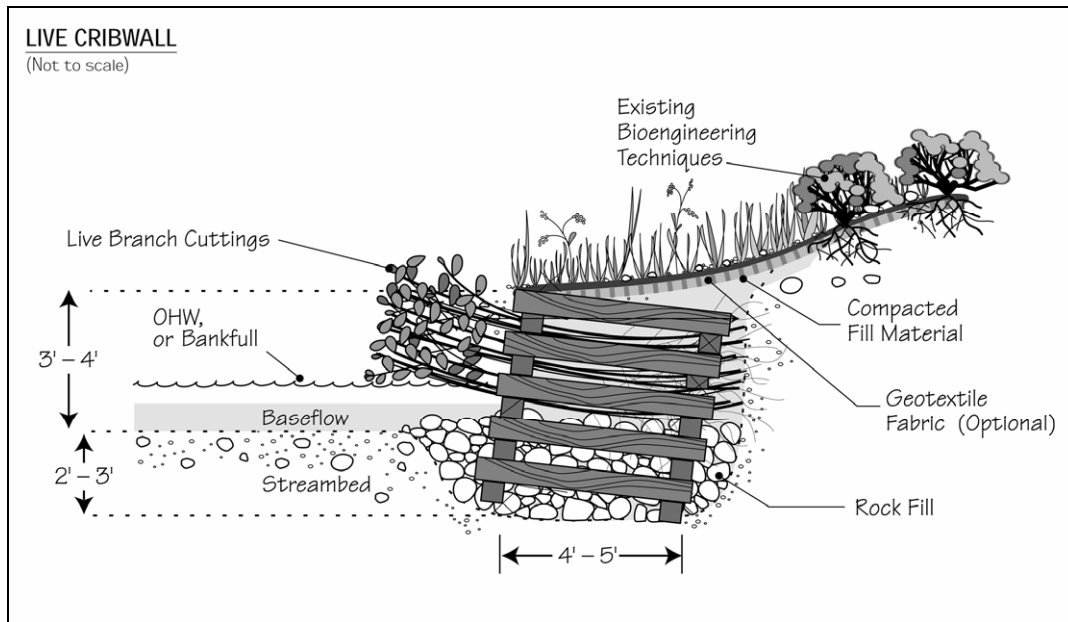


Figure 7.20 Live Cribwall (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Live Cribwall*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_cribwall.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Cribwall*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livecribwall.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Live Cribwalls*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs17.htm.

Live Fascines

Live fascines are long bundles of branch cuttings bound together in a cylindrical structure (Figure 7.21). They are suited to steep, rocky slopes, where digging is difficult (USDA-NRCS, 1992). When cut from appropriate species (e.g., young willows or shrub dogwoods) that root easily and have long straight branches, and when properly installed, they immediately begin to stabilize slopes. The cuttings (0.5 to 1.5 inches in diameter) form live fascine bundles that vary in length from 5 to 10 feet or longer, depending on site conditions and handling limitations. Completed bundles should be 6 to 8 inches in diameter. The goal is for natural recruitment to follow once slopes are secured. Live fascines should be placed in shallow contour trenches on dry slopes and at an angle on wet slopes to reduce erosion and shallow face sliding. Live fascines should be applied above ordinary high-water mark or bankfull level except on very small drainage area sites. In arid climates, they should be used between the high and low water marks on the bank. This system, installed by a trained crew, does not cause much site disturbance.

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under their Ecosystem Management and Restoration Research Program (EMRRP), the U.S. Army Corps of Engineers presents research on live fascines in a technical note (*Live and Inert Fascine Streambank Erosion Control*).⁷

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Live Fascines*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Live%20Fascines.pdf>.
- Greene County Soil & Water Conservation District. No date. *Construction Specification VS-01: Live Fascines*. <http://www.geswed.com/stream/library/pdfdocs/vs-01.pdf>.
- ISU. 2006. *How to Control Streambank Erosion: Live Fascine*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_fascine.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Fascine*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livefascine.pdf>.

⁷ <http://el.erdc.usace.army.mil/elpubs/pdf/sr31.pdf>

Channelization

- Physical & chemical
- Instream/riparian restoration

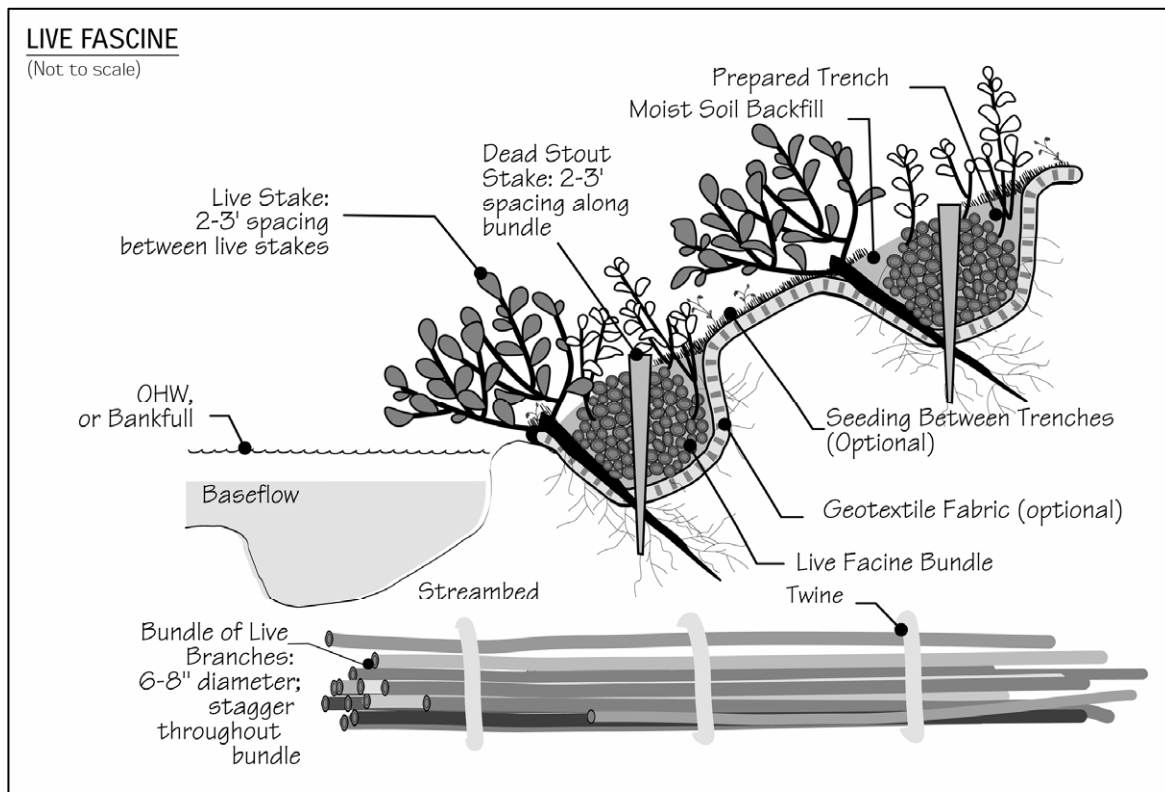
Dams

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Erosion

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- Ohio DNR. No date. *Ohio Stream Management Guide: Live Fascines*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs14.pdf.



Note: OHW (Ordinary High Water) is the mark along a streambank where the waters are common and usual. This mark is generally recognized by the difference in the character of the vegetation above and below the mark or the absence of vegetation below the mark (USDA-FS, 2002).

Figure 7.21 Live Fascine (USDA-FS, 2002)

Live Staking

Live staking (Figure 7.22) is appropriate for relatively uncomplicated site conditions when construction time is limited. It can also be used to stabilize intervening areas between other soil bioengineering techniques (USDA-NRCS, 1992). Live staking involves the insertion and tamping of live, rootable vegetative cuttings into the ground. If correctly prepared and placed, the live stake will root and grow. A system of stakes creates a living root mat that stabilizes the soil by reinforcing and binding soil particles together and by extracting excess soil moisture. Stakes are generally 1 to 2 inches in diameter and 2 to 3 feet long. Specific site requirements and available cutting source will determine size. Vegetation selected should be able to withstand the degree of anticipated inundation, provide year round protection, have the capacity to become well established under sometimes adverse soil conditions, and have root, stem, and branch systems capable of resisting erosive flows. Most willow species are ideal for live staking because they root rapidly and begin to dry out a slope soon after installation. Sycamore and cottonwood are also species commonly used for live staking. This is an appropriate technique for repair of small earth slips and slumps that are frequently wet. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Channelization

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Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resources

- ISU. 2006. *How to Control Streambank Erosion: Live Stakes*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_stakes.pdf.
- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners. Live Staking*. Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia. Publication 93-30. <http://www.ecy.wa.gov/programs/sea/pubs/93-30/livestaking.html>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Live Staking*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish. <http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/livestake.cfm>.

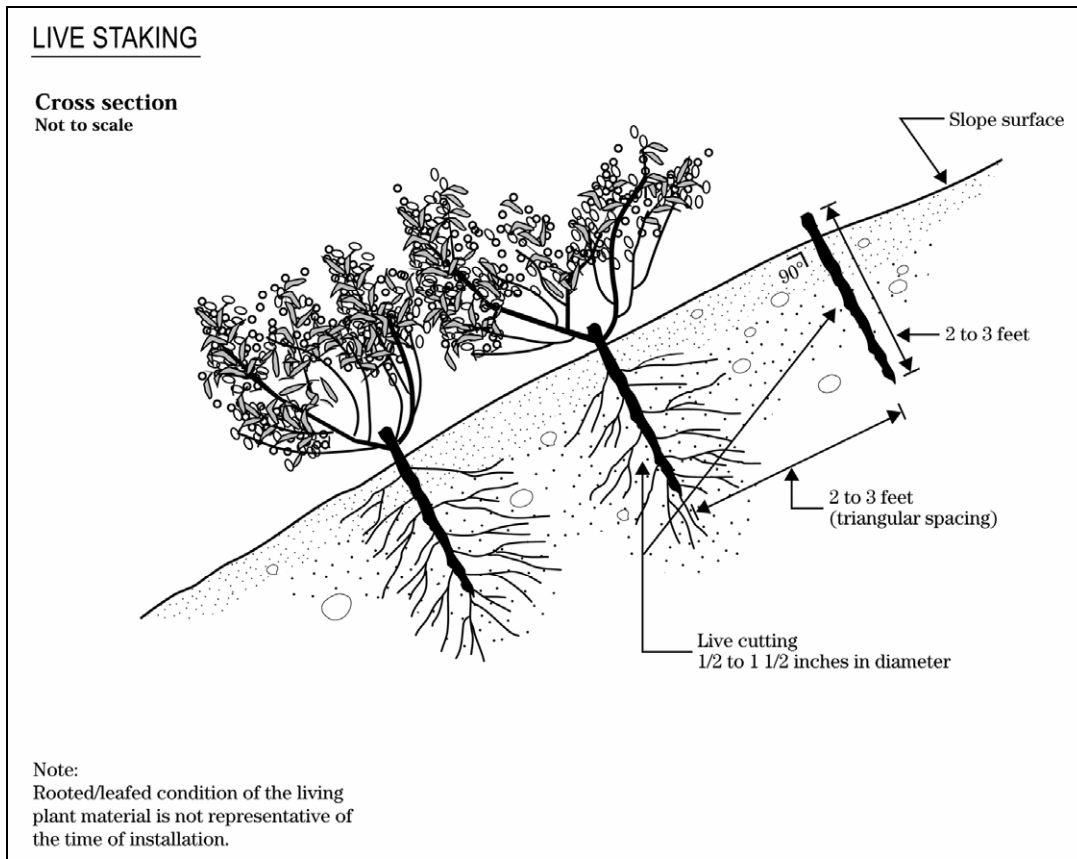


Figure 7.22 Live Staking (USDA-NRCS, 1992)

Locate Potential Land Disturbing Activities Away from Critical Areas

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

Channelization

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- Instream/riparian restoration

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Marsh Creation and Restoration

Marsh creation and restoration is a useful vegetative technique that can address problems with erosion of shorelines. Marsh plants perform two functions in controlling shore erosion (Knutson, 1988). First, their exposed stems form a flexible mass that dissipates wave energy. As wave energy is diminished, the offshore transport and longshore transport of sediment are reduced. Ideally, dense stands of marsh vegetation can create a depositional environment, causing accretion of sediments along the intertidal zone rather than continued shore erosion. Second, marsh plants form a dense mat of roots, which can add stability to the shoreline sediments. The basic approach for marsh creation is to plant a shoreline area in the vicinity of the tide line with appropriate marsh grass species. Suitable fill material may be placed in the intertidal zone to create a wetlands planting terrace of sufficient width (at least 18 to 25 feet) if such a terrace does not already exist at the project site. For shoreline sites that are highly sheltered from the effects of wind, waves, or boat wakes, the fill material is usually stabilized with small structures, similar to groins, which extend out into the water from the land. For shorelines with higher levels of wave energy, the newly planted marsh can be protected with an offshore installation of stone that is built either in a continuous configuration or in a series of breakwaters.

Channelization

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- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resource

- Maryland Department of the Environment. 2006. *Shore Erosion Control Guidelines: Marsh Creation*. <http://www.mde.state.md.us/assets/document/wetlandswaterways/Shoreerosion.pdf>.

Modifying Operational Procedures

A useful tool for evaluating the effects of operational procedures on the quality of tailwaters is computer modeling. For instance, computer models can describe the vertical withdrawal zone that would be expected under different scenarios of turbine operation (Smith et al., 1987). Zimmerman and Dortch (1989) modeled release operations for a series of dams on a Georgia river and found that procedures that were maintaining cool temperatures in summer were causing undesirable decreases in DO and increases in dissolved iron in autumn. The suggested solution was a seasonal release plan that is flexible, depending on variations in the in-pool water quality and predicted local weather conditions. Care should be taken with this sort of approach to accommodate the needs of both the fishery resource and reservoir recreationalists, particularly in late summer.

Modeling has also been undertaken for a variety of TVA and USACE facilities to evaluate the downstream impacts on DO and temperature that would result from changes in several operational procedures, including (Hauser et al., 1990a; Hauser et al., 1990b; Higgins and Kim, 1982; Nestler et al., 1986):

- Maintenance of minimum flows
- Timing and duration of shutoff periods
- Seasonal adjustments to the pool levels
- Timing and variation of the rate of drawdown

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Dams

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- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
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Mulching

Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Additional stabilization should be considered during the early stages of seeding. This extra stabilization can be accomplished using mulches or mulch mats, which are applied to disturbed soil surfaces and can protect the area while vegetation becomes established.

Mulches and mulch mats include tacked straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but, generally, is approximately 2 to 6 months. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive. During the times of the year when vegetation cannot be established, mulch can be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, mulching may need to be reapplied if washed away.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.
- CASQA. 2004. *California Stormwater BMP Construction Handbook: Hydraulic Mulch.* California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-3.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Mulching.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.3_mulching.pdf.

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Noneroding Roadways

General Road Construction Considerations

Road design and construction activities that are tailored to topography and soils and take into consideration the overall drainage pattern in the watershed where the road is being constructed can prevent road-related water quality problems. Lack of adequate consideration of watershed and site characteristics, road system design, and construction techniques appropriate to the site can result in mass soil movements, extensive surface erosion, and severe sedimentation in nearby waterbodies. The effect that a road network has on stream networks largely depends on the extent to which the networks are interconnected. Road networks can be hydrologically connected to stream networks where road surface runoff is delivered directly to stream channels (at stream crossings or via ditches or gullies that direct flow off the road into a stream) and where road cuts transform subsurface flow into surface flow (in road ditches or on road surfaces that deliver sediment and water to streams much more quickly than without a road present). The combined effects of these drainage network connections are increased sedimentation and peak flows that are higher and arrive more quickly after storms. This can lead to increased instream erosion and stream channel changes, especially in small watersheds (USEPA, 2005a).

Site characteristics should be considered during construction planning. On-site verification of information from topographic maps, soil maps, and aerial photos can ensure that locations where roads are to be cut into slopes or built on steep slopes or where skid trails, landings, and equipment maintenance areas are to be located are appropriate to the use. If an on-site visit indicates that construction changes can reduce the risk of erosion, the project manager can make these changes prior to construction, and in some cases as the project progresses (USEPA, 2005a).

Road drainage features tailored to the site prevent water from pooling or collecting on road surfaces. This prevents saturation of the road surface, which can lead to rutting, road slumping, and channel washout. Many roads associated with channelization projects are temporary or seasonal-use roads, and their construction should not involve the high level of disturbance generated by construction of permanent, high-standard roads. However, these types of roads still need to be constructed and maintained to prevent erosion and sedimentation (USEPA, 2005a).

Erosion control practices need to be applied while a road is being constructed, when soils are most susceptible to erosion, to minimize soil loss to waterbodies. Since sedimentation from roads often does not occur incrementally and continuously, but in pulses during large rainstorms, it is important that road, drainage structure, and stream crossing design take into consideration a sufficiently large design storm that has a good chance of occurring during the life of the project. Such a storm might be the 10-year, 25-year, 50-year, or even 100-year, 12- to 24-hour return period storm. Sedimentation cannot be completely prevented during or after road construction,

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but the process is exacerbated if the road construction and design are inappropriate for the site conditions or if the road drainage or stream crossing structures are insufficient (USEPA, 2005a).

When constructing a new road, it is useful to consider road surface shape and composition, slope stabilization, and wetlands. A more detailed discussion of these topics is provided below. More information about potential impacts to fish habitat and passage are provided in EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry*.⁸

Road Shape and Composition

The shape of a road is an important runoff control component. Road drainage and runoff control are obtained by shaping the road surface to be insloping, outsloping, or crowned. Insloping roads can be effective where soils are highly erodible and directing runoff directly to the fill slope would be detrimental. Outsloped roads tend to dissipate runoff more than insloped roads, which concentrate runoff at cross drain locations, and are useful where erosion of backfill or ditch soil might be a problem. Crowned roads are suited to two lane roads and to steep single-lane roads that have frequent cross drains or ditches and ditch relief culverts (USEPA, 2005a). These road surface shapes are illustrated in Figure 7.23. Maintain one of these shapes to ensure good drainage. Crowns, inslopes, and outslopes will quickly lose effectiveness if not maintained frequently, due to ruts created by traffic when the road surface is damp or wet (USEPA, 2005a).

Road surface composition can effectively control erosion from road surfaces and slopes. It is important to choose a surface that is suitable to the topography, soils, and intended use. Surface protection of the roadbed and cut-and-fill slopes with a suitable material can minimize soil losses during storms, reduce frost heave erosion production, restrain downslope movement of soil slumps, and minimize erosion from softened roadbeds (USEPA, 2005a).

Slope Stabilization

Road cuts and fills can be a large source of sediment when constructing a rural road. Stabilizing back slopes and fill slopes as they are constructed is important in minimizing erosion from these areas. Combined with gravel or other surfacing, establishing grass or another form of slope stabilization can significantly reduce soil loss from road construction. If constructing on an unstable slope is necessary, consider consulting with an engineering geologist or geotechnical

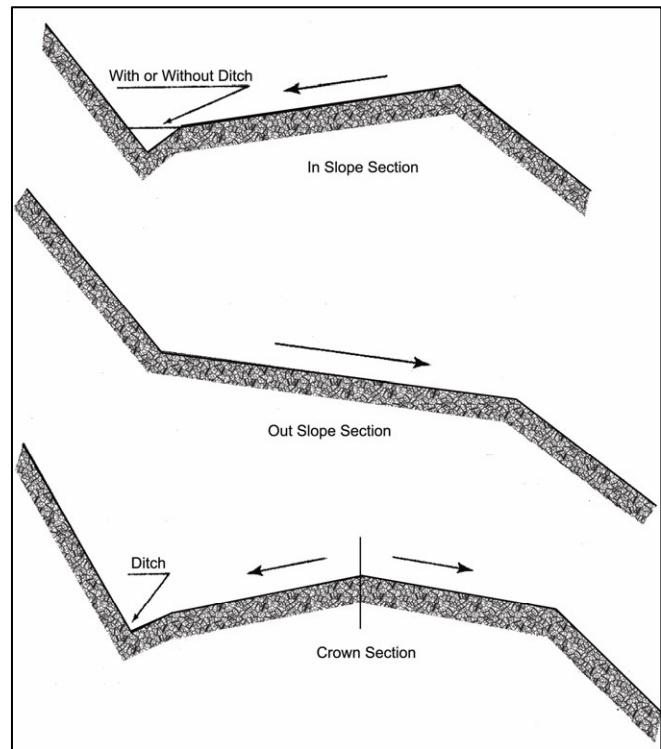


Figure 7.23 Types of Road Surface Shapes (USEPA, 2005a)

⁸ Available online at <http://www.epa.gov/owow/nps/forestrygmt>.

engineer for recommended construction methods and to develop plans for the road segment. Unstable slopes that threaten water quality should be considered unsuitable for road building.

Planting grass on cut-and-fill slopes of new roads can effectively reduce erosion, and placing forest floor litter or brush barriers on downslopes in combination with establishing grass is also effective for reducing downslope sediment transport. Grass-covered fill is generally more effective than mulched fill in reducing soil erosion from newly constructed roads because of the roots that hold the soil in place, which are lacking with other cover. Because grass needs some time to establish itself, a combination of straw mulch with netting to hold it in place can be used to cover a seeded area and effectively reduce erosion while grass is growing. The mulch and netting provide immediate erosion control and promote grass growth (USEPA, 2005a).

Wetland Road Considerations

Sedimentation is a concern when considering road construction through wetlands. It is better to avoid putting a road through a wetland when an alternative route exists. If no alternative exists, make sure to implement best management practices (BMPs) suggested by the state. Road construction or maintenance for certain farming, forestry, or mining activities might be exempt under Clean Water Act (CWA) section 404. However, to qualify for the exemption, the roads must be constructed and maintained following application of specific BMPs designed to protect the aquatic environment (USEPA, 2005a).

Pesticide and Fertilizer Management

Chemicals used in dam management include pesticides (insecticides, herbicides, and fungicides) and fertilizers. Since pesticides can be toxic, they have to be mixed, transported, loaded, and applied correctly and their containers disposed properly to prevent potential nonpoint source pollution. Since fertilizers can also be toxic or can damage the ecosystem, it is important that they be handled and applied properly, according to label instructions.

Even though a limited number of applications might be made at a specific dam site, consider that throughout a watershed many sites could receive applications of fertilizers and pesticides, which can accumulate in soils and in waterbodies. Application techniques also partly determine the potential risk to the aquatic environment from infrequent applications of pesticides and fertilizers.

These chemicals can directly enter surface waters through five major pathways—direct application, drift, mobilization in ephemeral streams, overland flow, and leaching. Direct application is the most important source of increased chemical concentrations and is also one of the most easily controlled.

Some more specific implementation practices for pesticide maintenance include:

- Apply pesticides during favorable atmospheric conditions. Do not apply pesticides when wind conditions increase the likelihood of significant drift. It is also best to avoid pesticide application when temperatures are high or relative humidity is low because these conditions influence the rate of evaporation and enhance losses of volatile pesticides.
- Ensure that pesticide users abide by the current pesticide label, which might specify whether users be trained and certified in the proper use of the pesticide; allowable use rates; safe handling, storage, and disposal requirements; and whether the pesticide may be used under the provisions of an approved State Pesticide Management Plan.
- Locate mixing and loading areas, and clean all mixing and loading equipment thoroughly after each use, where pesticide residues will not enter streams or other waterbodies.
- Dispose of pesticide wastes and containers according to state and federal laws.
- Consider the use of pesticides as only one part of an overall program to control pest problems. Integrated Pest Management (IPM) strategies have been developed to control pests without total reliance on chemical pesticides.
- Base selection of pesticide on site factors and pesticide characteristics. These factors include vegetation height, target pest, adsorption (attachment) to soil organic matter, persistence or half-life, toxicity, and type of formulation.
- Check all equipment carefully, particularly for leaking hoses and connections and plugged or worn nozzles. Calibrate spray equipment periodically to achieve uniform pesticide distribution and rate.

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- Always use pesticides in accordance with label instructions, and adhere to all federal and state policies and regulations governing pesticide use.

Specific implementation practices for fertilizer maintenance include:

- Apply slow-release fertilizers when possible. This practice reduces potential nutrient leaching to ground water, and it increase the availability of nutrients for plant uptake.
- Apply fertilizer during favorable atmospheric conditions. Do not apply fertilizer when wind conditions increase the likelihood of significant drift.
- Apply fertilizers during maximum plant uptake periods to minimize leaching.
- Base fertilizer type and application rate on soil and/or foliar analysis.

Phase Construction

Construction site phasing involves disturbing only small portions of a site at a time to prevent erosion from dormant parts (CWP, 1997c). Grading activities and construction are completed and soils are effectively stabilized on one part of the site before grading and construction commence at another. This is different from the more traditional practice of construction site sequencing, in which construction occurs at only one part of the site at a time but site grading and other site-disturbing activities typically occur all at once, leaving portions of the disturbed site vulnerable to erosion. To be effective, construction site phasing must be incorporated into the overall site plan early. Elements to consider when phasing construction activities include (CWP, 1997c):

- Managing runoff separately in each phase
- Determining whether water and sewer connections and extensions can be accommodated
- Determining the fate of already completed downhill phases
- Providing separate construction and residential accesses to prevent conflicts between residents living in completed stages of the site and construction equipment working on later stages

A comparison of sediment loss from a typical development and from a comparable phased project showed a 42 percent reduction in sediment export in the phased project (CWP, 1997c). Phasing can also provide protection from complete enforcement and shutdown of the entire project. If a contractor is in noncompliance in one phase or zone of a site, that will be the only zone affected by enforcement. This approach can help to minimize liability exposure and protect the contractor financially (Deering, 2000b).

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Physical Barriers

Physical barriers are diversion systems that lead or force fish to bypasses that transport them above or below the dam (FAO, 2001). Physical diversion structures deployed at dams include angled screens, drum screens, inclined plane screens, louvers, and traveling screens. The success and effectiveness of physical barriers has been found to be specific to individual hydropower facilities (Mattice, 1990).

Angled screens are used to guide fish to a bypass by guiding them through the channel at some angle to the flow. Coarse-mesh angled screens have been shown to be highly effective with numerous warm- and cold-water species at adult life stages. Fine-mesh angled screens have been shown in laboratory studies to be highly effective in diverting larval and juvenile fish to a bypass with resultant high survival. Performance of angled screens can vary by species, stream velocity, fish length, screen mesh size, screen type, and temperature (Stone and Webster, 1986). Clogging from debris and fouling organisms is a maintenance problem associated with angled screens.

Angled rotary drum screens oriented perpendicular to the flow direction have been used extensively to lead fish to a bypass. Angled rotary drum screens tend not to experience the major operational and maintenance clogging problems of stationary screens, such as angled vertical screens. Maintenance of angled rotary drum screens typically consists of routine inspection, cleaning, lubrication, and periodic replacement of the screen mesh (Stone and Webster, 1986).

An inclined plane screen is used to divert fish upward in the water column into a bypass. Once concentrated, the fish are transported to a release point below the dam. An inclined plane pressure screen at the T.W. Sullivan Hydroelectric Project (Willamette Falls, Oregon) is located in the penstock of one unit. The design is effective in diverting fish, with a high survival rate. However, this device has been linked to injuries in some species of migrating fish, and it has not been accepted for routine use (Stone and Webster, 1986).

Louvers consist of an array of evenly spaced, vertical slats aligned across a channel at an angle leading to a bypass. The turbulence they create is sensed and avoided by the fish (Stone and Webster, 1986). Louver systems rely on a fish's instincts to use senses other than sight to move around obstacles. Once the louver is sensed, the fish tend to reverse their head first downstream orientation (to head upstream, tail to the louver) and move laterally along it until they reach the bypass (OTA, 1995).

Submerged traveling screens are used to divert downstream migrating fish out of turbine intakes to adjoining gatewell structures, where the fish are concentrated for release downstream. This device has been tested extensively at hydropower facilities on the Snake and Columbia Rivers. Because of their complexity, submerged traveling screens must be continually maintained. The

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screens must be serviced seasonally, depending on the debris load, and trash racks and bypass orifices must be kept free of debris (Stone and Webster, 1986).

Physical barrier fish diversion systems have been found to work best when specifically designed to the structure and fish being passed. Small differences in design, such as the spacing or depth of the louvers, can mean the difference in success and failure. A successful louver system has been installed at the Holyoke Hydroelectric Power Station, on the Connecticut River. This partial depth louver system was installed in the intake channel at the power plant and successfully passed 86 percent of the juvenile clupeids and 97 percent of the Atlantic salmon (*Salmo salar*) smolts (Marmulla, 2001). Another partial depth louver system on the same river has experienced less successful results. The system installed at the Vernon Dam on the Connecticut River is successfully passing about 50 percent of the Atlantic salmon smolts (OTA, 1995).

Pollutant Runoff Control

Store, cover, and isolate construction materials, refuse, garbage, sewage, debris, oil and other petroleum products, mineral salts, industrial chemicals, and topsoil to prevent runoff of pollutants and contamination of ground water.

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Preserve Onsite Vegetation

Preserving onsite vegetation retains soil and limits runoff of water, sediment, and pollutants. The destruction of existing onsite vegetation can be minimized by initially surveying the site to plan access routes, locations of equipment storage areas, and the location and alignment of the dam. Construction workers can be encouraged to limit activities to designated areas only. Reducing the disturbance of vegetation also reduces the need for revegetation after construction is completed, including the required fertilization, replanting, and grading that are associated with revegetation. Additionally, as much natural vegetation as possible should be left next to the waterbody where construction is occurring. This vegetation provides a buffer to reduce the NPS pollution effects of runoff originating from areas associated with the construction activities.

Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook: Preservation of Existing Vegetation*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/EC-2.pdf>.

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Reregulation Weir

Reregulation weirs have been constructed from stone, wood, and aggregate. In addition to increasing the levels of DO in the tailwaters, reregulation weirs result in a more constant rate of flow farther downstream during periods when turbines are not in operation. A reregulation weir constructed downstream of the Canyon Dam (Guadalupe River, Texas) increased DO levels in waters leaving the turbine from 3.3 mg/L to 6.7 mg/L (EPRI, 1990).

The USACE Waterways Experiment Station (Wilhelms, 1988) has compared the effectiveness with which various hydraulic structures accomplished the reaeration of reservoir releases. The study concluded that, whenever operationally feasible, more discharge should be passed over weirs to improve DO concentrations in releases.

Results indicated that overflow weirs aerate releases more effectively than low-sill spillways (Wilhelms, 1988).

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Reservoir Aeration

Some techniques for reservoir aeration include:

- Air injection systems
- Diffused air systems
- Oxygen injection systems
- U-tube design

Air injection systems mix water from different strata in the impoundment by using air or pure oxygen injected into a pumping system. Air injection systems are categorized as partial air lift systems and full air lift systems. In the partial air lift system, compressed air is injected at the bottom of the unit; then the air and water are separated at depth and the air is vented to the surface. In the full air lift system, compressed air is injected at the bottom of the unit (as in the partial air lift system), but the air-water mixture rises to the surface. The full air lift design has a higher efficiency than the partial-air lift and has a lesser tendency to elevate dissolved nitrogen levels (Thornton et al., 1990).

Diffused air systems provide effective transfer of oxygen to water by forcing compressed air through small pores in diffuser systems to form bubbles. One diffuser system test in the Delaware River near Philadelphia, Pennsylvania in 1969–1970 demonstrated the efficiency of this practice. Coarse-bubble diffusers were deployed at depths ranging from 13 to 38 feet. Depending on the depth of deployment, the oxygen transfer efficiency varied from 1 to 12 percent. When compared with other systems discussed below, this efficiency rate is rather low. But the results of this test determined that river aeration was more economical than advanced wastewater treatment as a strategy for improving the levels of DO in the river (EPRI, 1990). Another type of oxygen injection system, which pumps gaseous oxygen into the hypolimnion through diffusers, has effectively improved DO levels in the reservoir behind the Richard B. Russell Dam (Savannah River, on the Georgia-South Carolina border). The system is operated 1 mile upstream of the dam, with occasional supplemental injection of oxygen at the dam face when DO levels are especially low. The system has successfully maintained DO levels above 6 mg/L in the releases, with an average oxygen transfer efficiency of 75 percent (EPRI, 1990; Gallagher and Mauldin, 1987).

The diffused air system has been found to be a cost-effective method to raise low DO levels within a reservoir (Henderson and Shields, 1984). However, the costs of air diffuser operation may be high for deep reservoirs because of hydraulic pressures that must be overcome. Destratification that results from deployment of an air diffuser system may also mix nutrient-rich waters located deep in the impoundment into layers located closer to the surface, increasing the potential for stimulation of algal populations. Barbiero et al. (1996), in a study on the effects of artificial circulation on a small northeastern impoundment, found that artificial circulation ultimately had no effect on the magnitude of summer phytoplankton populations. However, the authors note that intermittent mixing events tend to promote increased transport of phosphorus

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into the epilimnion. While this had no effect on phytoplankton populations in the studied lake, it demonstrates the potential of artificial circulation to impact water quality and the need for careful evaluation of potential impacts.

Oxygen injection systems use pure oxygen to increase levels of dissolved oxygen in reservoirs. One type of design, termed side stream pumping, carries water from the impoundment onto the shore and through a piping system into which pure oxygen is injected. After passing through this system, the water is returned to the impoundment (EPRI, 1990).

The U-tube design, in which water from deep in the impoundment is pumped to the surface layer, provides a means to aerate reservoir waters. Oxygen transfer is increased as a mixture of water and oxygen gas is subjected to greater hydrostatic pressure. Water moves down the U-tube and pressure increases as a function of depth, dissolving the oxygen gas into the water. The oxygenated water then travels back up through the system and is released to the waterway (Jones and Stokes, 2004). The inducement of artificial circulation through aeration of the impoundment may also provide the opportunity for a “two-story” fishery, reduce internal phosphorus loading, and eliminate problems with iron and manganese in drinking water (Thornton et al., 1990).

If the principal objective is to improve DO levels only in the reservoir releases and not throughout the entire impoundment, then aeration can be applied selectively to discrete layers of water immediately surrounding the intakes or as water passes through release structures such as hydroelectric turbines. Localized mixing is a practice to improve releases from thermally stratified reservoirs by destratifying the reservoir in the immediate vicinity of the outlet structure. This practice differs from the practice of artificial destratification, where mixing is designed to destratify all or most of the reservoir volume (Holland, 1984). Localized mixing is provided by forcing a jet of high-quality surface water downward into the hypolimnion. Pumps used to create the jet generally fall into two categories, axial flow propellers and direct drive mixers (Price, 1989). Axial flow pumps usually have a large-diameter propeller (6 to 15 feet) that produces a high-discharge, low-velocity jet. Direct drive mixers have small propellers (1 to 2 feet) that rotate at high speeds and produce a high-velocity jet. The axial flow pumps are suitable for shallow reservoirs because they can force large quantities of water down to shallow depths. The high-momentum jets produced by direct drive mixers are necessary to penetrate deeper reservoirs (Price, 1989).

Additional Resource

- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.

Retaining Walls

Retaining walls are used in areas where soils are unstable, where slopes are steeper than the angle of repose, and where the horizontal distance is limited. They help stabilize slopes and can decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

According to the *Iowa Construction Site Erosion Control Manual*, a variety of materials can be used for construction of retaining walls, including concrete masonry, concrete cribbing, steel piling, gabions, precast stone, rock riprap, reinforced earth, stone drywall, and treated wood timbers. Costs vary by the material selected for construction. When designing a retaining wall, the following factors should be taken into account: drainage, bearing value of the soil, wall thickness, stress, foundation design, and wall height.

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Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Retaining Wall*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.13_retaining_wall.pdf.
- Leposky, R.E. 2004. *Retaining Walls: What You See and What You Don't*. http://www.forester.net/ecm_0401_retaining.html.

Return Walls

Whenever shorelines or streambanks are “hardened” through the installation of bulkheads, seawalls, or revetments, the design process must include consideration that waves and currents can continue to dislodge the substrate at both ends of the structure, resulting in very concentrated erosion and rapid loss of fastland. This process is called flanking. To prevent flanking, return walls should be provided at either end of a vertical protective structure and should extend landward for a horizontal distance consistent with the local erosion rate and the design life of the structure.

Additional Resource

- USACE. 1985. *Coastal Engineering Technical Note: Determining Lengths of Return Walls*. U.S. Army Engineer Waterways Experiment Station.
<http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/cetn-iii-25.pdf>.

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Revegetate

Revegetation of construction sites during and after construction is the most effective way to permanently control erosion (Hynson et al., 1985). To select the right plants for your bioengineering project, note what native plant communities grow in the area. Avoid planting noxious or invasive grasses, such as reed canary grass or ryegrass. Remove invasive plants such as yellow starthistle, English ivy, deadly nightshade, field morning glory, scotch broom, cheatgrass, and purple loosestrife. Use more of the same native plants in the bioengineering design, as these plants are most likely adapted to conditions to the area.

Plants like willow, red osier dogwood, alder, ash, and cottonwood can be well suited for bioengineering. They establish easily, grow quickly, and have thick root systems. Cuttings are available from native plant nurseries. They may also be collected next to the project site, if the area is well vegetated (Oregon Association of Conservation Districts, 2004).

Ecological and vegetational areas vary throughout the country. Therefore, other plant materials may be more suitable for a project. Contact local cooperative extension services for more plant information.⁹

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.
- Ohio DNR. No date. *Ohio Stream Management Guide: Restoring Streambanks with Vegetation*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs07.htm.

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⁹ http://www.csrees.usda.gov/qlinks/partners/state_partners.html

Revetment

A revetment (Figure 7.24) is a type of vertical protective structure used for shoreline protection. One revetment design contains several layers of randomly shaped and randomly placed stones, protected with several layers of selected armor units or quarry stone. The armor units in the cover layer should be placed in an orderly manner to obtain good wedging and interlocking between individual stones. The cover layer may also be constructed of specially shaped concrete units (USACE, 1984).

Sometimes gabions (stone-filled wire baskets) or interlocking blocks of precast concrete are used in the construction of revetments. In addition to the surface layer of armor stone, gabions, or rigid blocks, successful revetment designs also include an underlying layer composed of either geotextile filter fabric and gravel or a crushed stone filter and bedding layer. This lower layer functions to redistribute hydrostatic uplift pressure caused by wave action in the foundation substrate. Precast cellular blocks, with openings to provide drainage and to allow vegetation to grow through the blocks, can be used in the construction of revetments to stabilize banks. Vegetation roots add additional strength to the bank. In situations where erosion can occur under the blocks, fabric filters can be used to prevent the erosion. Technical assistance should be obtained to properly match the filter and soil characteristics. Typically blocks are hand placed when mechanical access to the bank is limited or costs need to be minimized. Cellular block revetments have the additional benefit of being flexible to conform to minor changes in the bank shape (USACE, 1983).

Additional Resource

- Ohio DNR. No date. *Ohio Stream Management Guide: Riprap Revetments*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs16.pdf.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

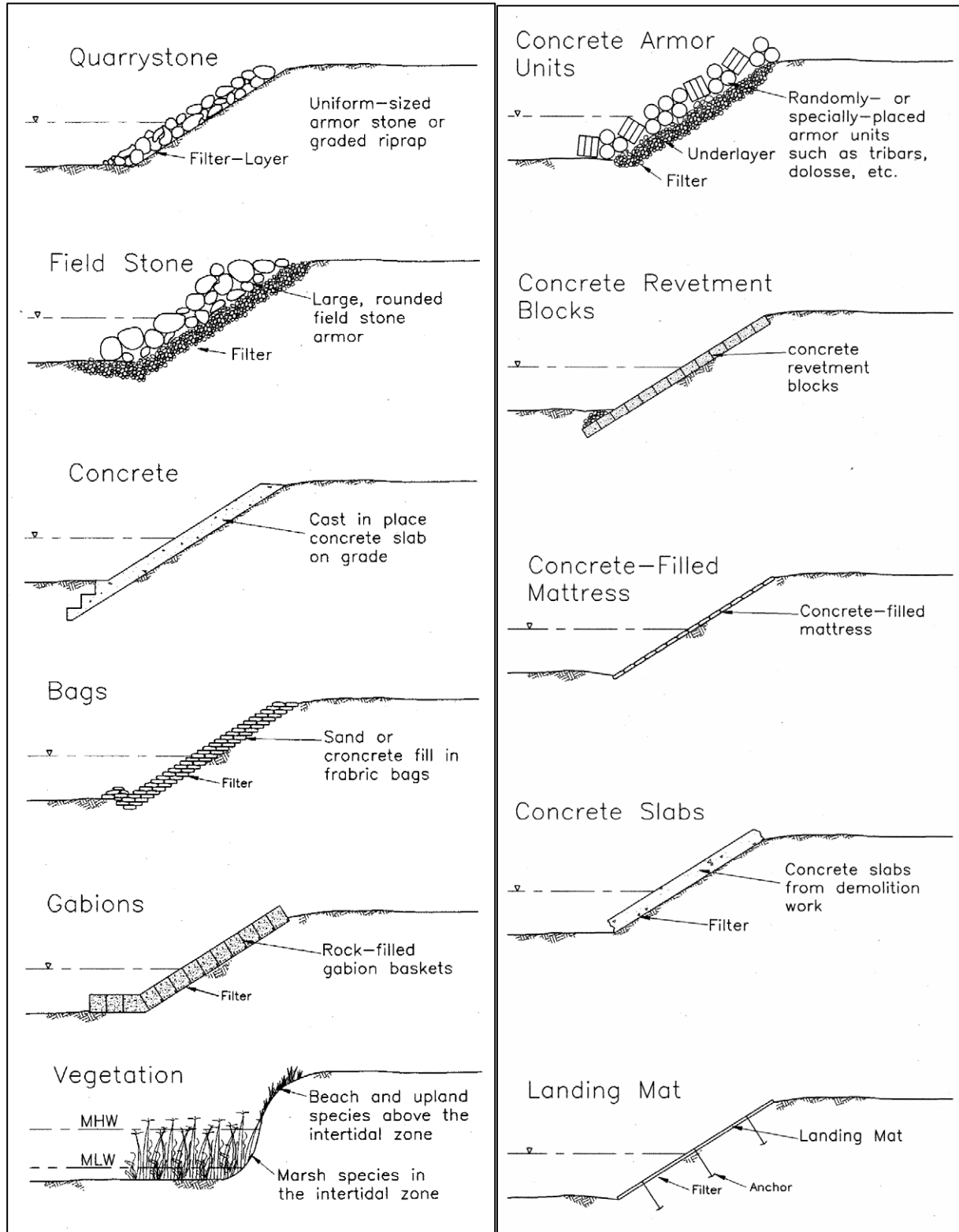


Figure 7.24 Revetment Alternatives (USACE, 2003)

Riparian Improvements

Riparian improvements are another strategy that can be used to restore or maintain aquatic and riparian habitat around reservoir impoundments or along the waterways downstream from dams. In fact, Johnson and LaBounty (1988) found that riparian improvements were more effective, in some cases, than flow augmentation for protection of instream habitat. In the Salmon River (Idaho), a variety of instream and riparian habitat improvements have been recommended to improve the indigenous stocks of Chinook salmon (*Oncorhynchus tshawytscha*). These improvements include reducing sediment loading in the watershed, improving riparian vegetation, eliminating barriers to fish migration (see sections discussing this practice below), and providing greater instream and riparian habitat diversity (Andrews, 1988).

Maintaining and improving riparian areas upstream of a dam may also be an important consideration for reducing flow-related impacts to dams. Riparian areas along brooks and smaller streams are sometimes altered in a manner that impairs their ability to detain and absorb floodwater and stormwater (e.g., removal of forest cover or increased imperviousness). The cumulative impact of the riparian changes results in the smaller streams discharging increased volumes and velocities of water, which then result in more severe downstream flooding and increased storm damage and/or maintenance to existing structures (such as dams). These downstream impacts may occur even though main stem floodplains and riparian areas are safeguarded and remain close to their natural condition (Cohen, 1997).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
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- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Riprap

Riprap is a layer of appropriately sized stones designed to protect and stabilize areas subject to erosion, slopes subject to seepage, or areas with poor soil structure. Riprap extends from the toe of the slope to a height needed for long term durability (Figure 7.25).

Riprap can be used where vegetation cannot be established or in combination with vegetative approaches. This method is suitable where stream flow velocity is high or where there is a threat to life or property. This method can be expensive, particularly if materials are not locally available. This method should be combined with soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998).

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

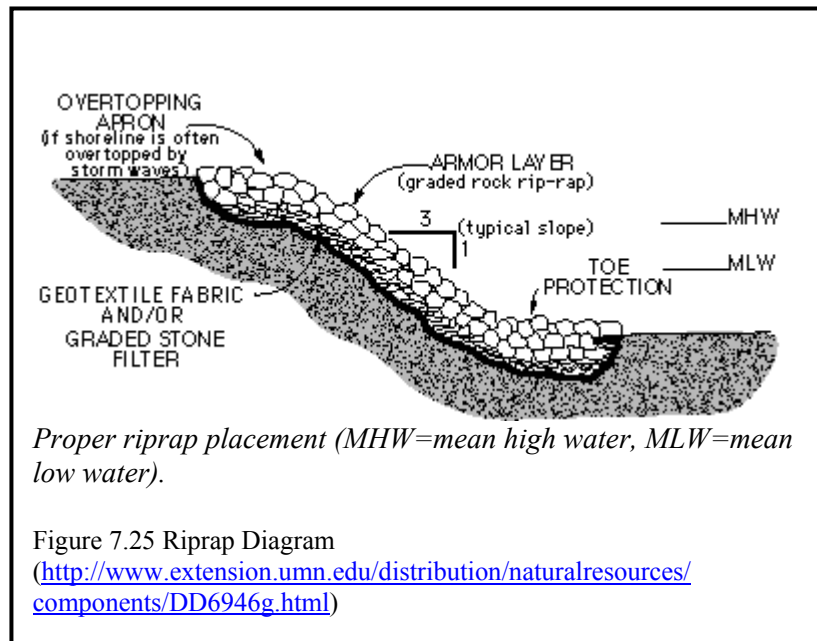
- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Riprap*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/construction/3.15_riprap.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Riprap*. Tennessee Department of Environment and Conservation, Nashville, TN.
http://state.tn.us/environment/wpc/sed_ero_controlhandbook/rr.pdf.



Root Wad Revetments

Root wads armor a bank by keeping faster moving currents away from the bank (Figures 7.26 and 7.27). They are most useful for low energy streams that meander and have out-of-bank flow conditions. Root wads should be used in combination with other soil bioengineering techniques to stabilize a bank and ensure plant establishment on the upper portions of the streambank. Stabilizing the bank will reduce streambank erosion, trap sediment, and improve habitat diversity. There are a number of ways to install root wads. The trunk can be driven into the bank, laid in a deep trench, or installed as part of a log and boulder revetment. Use tree wads that have brushy top and durable wood, such as Douglas fir, oak, hard maple, juniper, spruce, cedar, red pine, white pine, larch, or beech. Ponderosa pine and aspen are too inflexible, and alder decomposes rapidly.

With the added support of a log and boulder revetment, root wads can stabilize banks of high-energy streams. Root wad span should be approximately 5 feet with numerous root protrusions. The trunk should be at least 8 to 12 feet long. Boulders should be as large as possible, but at least one and a half times the log's diameter. They should also have an irregular surface. Logs are to be used as footers or revetments and should be over 16 inches in diameter.

When logs and root wads are well anchored, this design will tolerate high boundary shear stress. However, local scour and erosion is possible. Varying with climate and tree species used, the decomposition of the logs and rootwads will limit the life span of this design. If colonization of streambank vegetation does not take place, replacement may be required. The project site must be accessible to heavy equipment. Locating materials may be difficult in some locations and this method can be expensive (FISRWG, 1998).

- | |
|---|
| <p>Channelization</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Physical & chemical <input checked="" type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input type="checkbox"/> Shorelines <input type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input checked="" type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
|---|

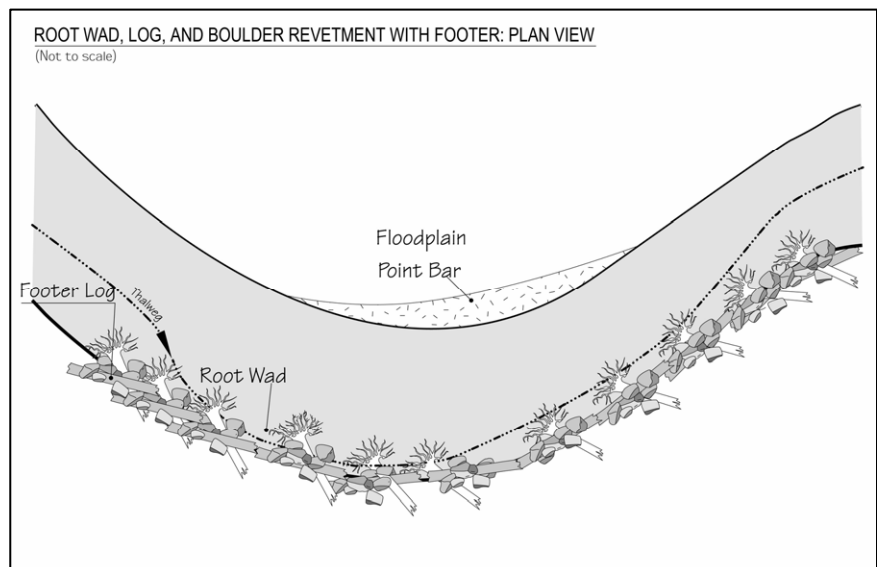


Figure 7.26 Root Wad, Log, and Boulder Revetment with Footer: Plan View (USDA-FS, 2002)

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on rootwad composites in a technical note (*Rootwad Composites for Streambank Erosion Control and Fish Habitat Enhancement*).¹⁰

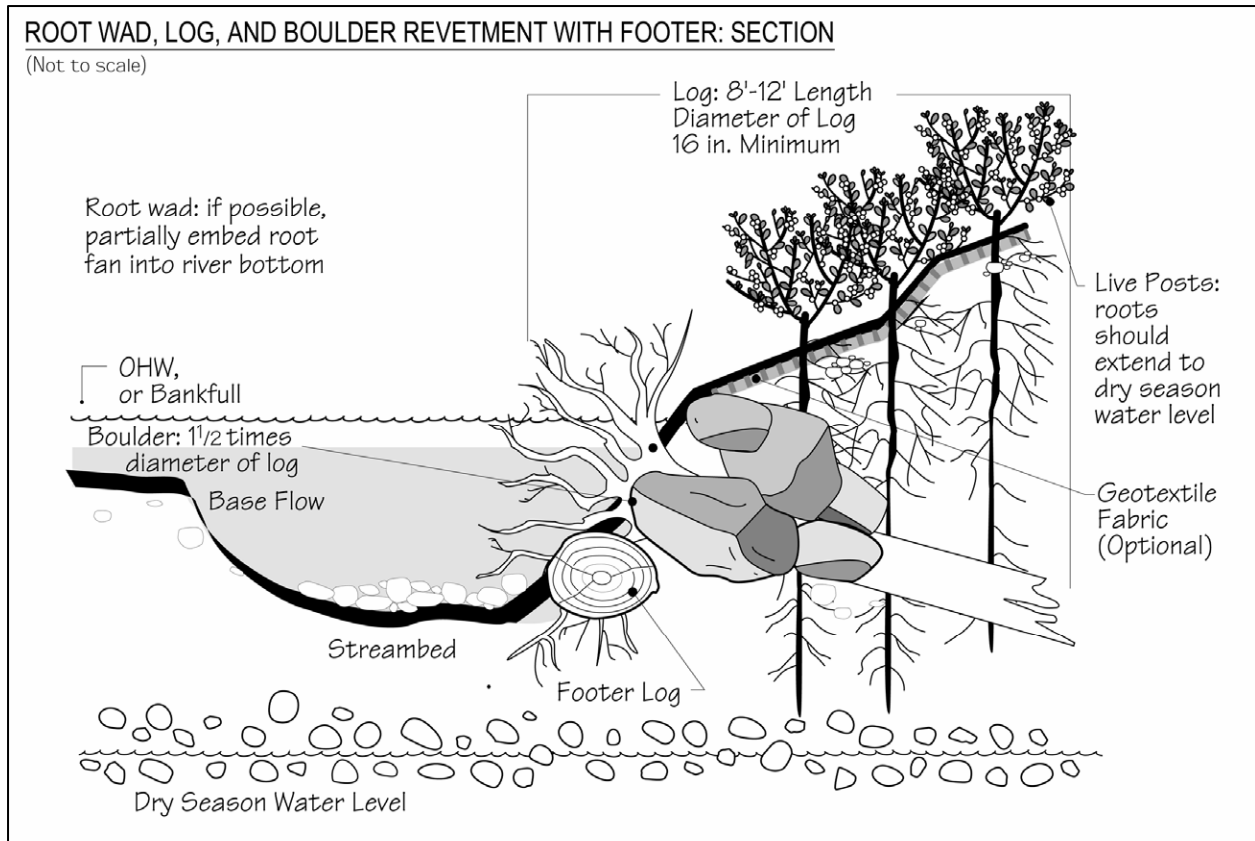


Figure 7.27 Rootwad, Log, and Boulder Revetment with Footer: Section (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Harmon, W.A. and R. Smith. 2000. *Using Root Wads and Rock Vanes for Streambank Stabilization*. River Course Fact Sheet Number 4. North Carolina Cooperative Extension Service.
<http://www.bae.ncsu.edu/programs/extension/wqg/sri/rv-crs-4.pdf>.
- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Root Wads*. Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish.
<http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/rootwad.cfm>.

¹⁰ <http://el.erdc.usace.army.mil/elpubs/pdf/sr21.pdf>

Rosgen's Stream Classification Method

Rosgen's stream channel stability method provides a sequence of steps for the field practitioner to use in reaching final conclusions and making recommendations for management, stream design, or restoration. The field practitioner uses field-measured variables to assess:

- Stream state or channel condition variables
- Vertical stability (degradation/aggradation)
- Lateral stability
- Channel patterns
- Stream profile and bed features
- Channel dimension factor
- Channel scour/deposition (with competence calculations of field verified critical dimensionless shear stress and change in bed and bar material size distribution)
- Stability ratings adjusted by stream type
- Dimensionless ratio sediment rating curves by stream type and stability ratings
- Selection of position in stream type evolutionary scenario as quantified by morphological variables by stream type to determine state and potential of stream reach.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

The stability assessment is conducted on a reference reach and a departure analysis is performed when compared to an unstable reach of the same stream type. Changes in the variables controlling river channel form, primarily streamflow, sediment regime, riparian vegetation, and direct physical modifications can cause stream channel instability. Separating the differences between anthropogenic versus geologic processes in channel adjustment is a key to prevention, mitigation, and restoration of disturbed systems.

Rosgen (1996) has also created a river inventory hierarchy involving four levels that would allow a stream assessment to be conducted at various levels, ranging from broad qualitative descriptions to detailed quantitative descriptions. The idea is to provide documented measurements, coupled with consistent, quantitative indices of stability, to make the approach to stream assessments less subjective and more consistent and reproducible. Level I and Level II are used to do the initial stratification of a reach by valley and stream type. Level III is used to predict stability. Level IV is used for validation, and requires the greatest amount of detail over a longer time period. For example, vertical stability and bank erosion can be estimated at Level III. But, in a Level IV assessment, permanent cross-sections are revisited over time to verify shifts in bed elevation and measure actual erosion that occurred.

The four hierarchal levels, and the measurements and determinations they include, are shown below along with their objectives.

Level I—Geomorphic characterization: Used to describe generalized fluvial features using remote sensing and existing inventories of geology, landform evolution, valley morphology, depositional history and associated river slopes, relief and patterns utilized for generalized categories of major stream types, and associated interpretations.

Level II—Morphological description: To delineate homogeneous stream types that describe specific slopes, channel materials, dimensions and patterns from reference reach measurements and provide a more detailed level of interpretation than Level I. Includes measurements such as sinuosity, width/depth ration, slope, entrenchment ratio, and channel patterns and material.

Level III—Stream “state” or condition: The “state” of streams further describes existing conditions that influence the response of channels to imposed change and provide specific information for prediction methodologies (such as stream bank erosion calculations). Provides for very detailed descriptions and associated interpretation and predictions. Includes such measurements and/or characterizations of vegetation, deposition, debris, meander patterns, channel stability index, and flow regime.

Level IV—Reach specific studies (validation level): Provides reach-specific information on channel processes. Used to evaluate prediction methodologies; to provide sediment, hydraulic and biological information related to specific stream types; and to evaluate effectiveness of mitigation and impact assessments for activities by stream type. Involves direct measurements of sediment transport, bank erosion rates, aggradation/degradation, hydraulics, and biological data.

Rosgen’s stream classification methodologies can assist in stream restoration design by:

- Enabling more precise estimates of quantitative hydraulic relationships associated with specific stream and valley morphologies.
- Establishing guidelines for selecting stable stream types for a range of dimensions, patterns, and profiles that are in balance with the river’s valley slope, valley confinement, depositional materials, streamflow, and sediment regime of the watershed.
- Providing a method for extrapolating hydraulic parameters and developing empirical relationships for use in the resistance equations and hydraulic geometry equations needed for restoration design.
- Developing a series of meander geometry relationships that are uniquely related to stream types and their bankfull dimensions.
- Identifying the stable characteristics for a given stream type by comparing the stable form to its unstable or disequilibrium condition.

Refer to *Applied River Morphology* (Rosgen, 1996) for more information on this stream classification system and potential applications.

Scheduling Projects

Often clearing and grading for a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (e.g., May 1 to October 31), temporary erosion and sediment controls might not be needed. In some parts of the country erosion potential is very high during certain parts of the year, such as the spring thaw in northern and high-elevation areas. During that time of year, snowmelt generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed off-site. Therefore, in the north, limitations could be placed on clearing and grading during the spring thaw (Goldman et al., 1986).

Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook: Scheduling*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/EC-1.pdf>.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Sediment Basins/Rock Dams

An earthen or rock embankment that is located to capture sediment from runoff and retain it on the construction site.

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff. Basin dewatering is achieved either through a single riser and drainage hole leading to a suitable outlet on the downstream side of the embankment or through the gravel of the rock dam. In both cases, water is released at a substantially slower rate than would be possible without the control structure.

The following are general specifications for sediment basin design criteria as presented in Schueler (1997):

- Provide 1,800 to 3,600 ft³ of storage per contributing acre (a number of states, including Maryland, Pennsylvania, Georgia, and Delaware, recently increased the storage requirement to 3,600 ft³ or more [CWP, 1997b]).
- Surface area equivalent to 1 percent of drainage area (optional, seldom required).
- Riser with spillway capacity of 0.2 ft³/s/ac of drainage area (peak discharge for 2-year storm with 1-foot freeboard).
- Length-to-width ratio of 2 or greater.
- Basin side slopes no steeper than 2:1 (h:v).
- Safety fencing, perforated riser, dewatering (optional, seldom required).

Sediment basins can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as temporary; otherwise, they are considered permanent. Temporary sediment basins can also be converted into permanent runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds. It is important to note that even the best-designed sediment basin seldom exceeds 60 to 75 percent total suspended solids (TSS) removal, which should be considered when selecting a sediment control practice.

Basins are most commonly used at the outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Sediment Basin*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/SE-2.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Basin*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.17_sediment_basin.pdf.
- Michigan Department of Environmental Quality. 1992. *SESC Training Manual: Sedimentation Basin*. Michigan Department of Environmental Quality, Lansing, MI.
<http://www.deq.state.mi.us/documents/deq-swq-nps-sb.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Basin*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sb.pdf.

Sediment Fences

Silt fence, also known as filter fabric fence, is available in several mesh sizes from many manufacturers. Sediment is filtered out as runoff flows through the fabric. Such fences should be used only where there is sheet flow (no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. To ensure sheet flow, a gravel collar or level spreader can be used upslope of the fence. Many types of fabrics are available commercially. The characteristics that determine a fence's effectiveness include filtration efficiency, permeability, tensile strength, tear strength, ultraviolet resistance, pH effects, and creep resistance. The longevity of silt fences depends heavily on proper installation and maintenance, however they typically last 6 to 12 months. CWP (1997d) identified several conditions that increase the effectiveness of silt fences:

- The length of the slope does not exceed 50 feet for slopes of 5 to 10 percent, 25 feet for slopes of 10 to 20 percent, or 15 feet for slopes greater than 20 percent.
- The silt fence is aligned parallel to the slope contours.
- Edges of the silt fence are curved uphill, which does not allow flow to bypass the fence.
- The contributing length to the fence is less than 100 feet.
- The fence has reinforcement if receiving concentrated flow.
- The fence was installed above an outlet pipe or weir.
- The fence is down slope of the exposed area and alignment considers construction traffic.
- Sediment is not allowed to accumulate behind the fence (increases capacity and decreases breach potential).
- Alignment of the silt fence mirrors the property line or limits of disturbance.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Straw Bale Barrier*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf>.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Barrier*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.16_sediment_barrier.pdf.
- Missouri Department of Natural Resources. 2006. *Protecting Water Quality, A Construction Site Water Quality Field Guide: Sediment Fence*. Missouri Department of Natural Resources. http://www.dnr.mo.gov/env/wpp/field-guide/fg05_06_sedimentcontrol.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Silt Fence*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sf.pdf.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Sediment Traps

Sediment traps are small impoundments that allow sediment to settle out of runoff water. They are typically installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap. Sediment traps are ideal for sites 1 acre and smaller and should not be used for areas greater than 5 acres. They typically have a useful life of approximately 18 to 24 months. A sediment trap should be designed to maximize surface area for infiltration and sediment settling. This design increases the effectiveness of the trap and decreases the likelihood of backup during and after periods of high runoff intensity. The approximate storage capacity of each trap should be at least 1,800 ft³/acre of disturbed land draining into the trap (Smolen et al., 1988).

Channelization

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- Instream/riparian restoration

Dams

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- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Additional Resources

- British Columbia Ministry of Agriculture, Food and Fisheries. 2004. *Constructed Ditch Fact Sheet: Sediment Traps*. No. 9. <http://www.agf.gov.bc.ca/resmgmt/publist/600Series/641310-1.pdf>.
- CASQA. 2003. *California Stormwater BMP Construction Handbook: Sediment Traps*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Construction/SE-3.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Trap*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/st.pdf.

Seeding

Seeding establishes a vegetative cover on disturbed areas and is very effective in controlling soil erosion once a dense vegetative cover has been established. Seeding establishes permanent erosion control in a relatively short amount of time and has been shown to decrease solids load by 99 percent (CWP, 1997a). The three most common seeding methods are (1) broadcast seeding, in which seeds are scattered on the soil surface; (2) hydroseeding, in which seeds are sprayed on the surface of the soil with a slurry of water; and (3) drill seeding, in which a tractordrawn implement injects seeds into the soil surface. Broadcast seeding is most appropriate for small areas and for augmenting sparse and patchy grass covers. Hydroseeding is often used for large areas (in excess of 5,000 square feet) and is typically combined with tackifiers, fertilizers, and fiber mulch. Drill seeding is expensive and is cost-effective only on sites greater than 2 acres. For best results, bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 15 days or more can also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, nonsensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. The Soil Quality Institute (SQI, 2000) recommends that soils that have been compacted by grading should be broken up or tilled before vegetating.

Channelization

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Erosion

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- Vegetative
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- Planning & regulatory

To establish a vegetative cover, it is important to use seeds from adapted plant species and varieties that have a high germination capacity. Supplying essential plant nutrients, testing the soil for toxic materials, and applying an adequate amount of lime and fertilizer can overcome many unfavorable soil conditions and establish adequate vegetative cover. Specific information about seeds, various species, establishment techniques, and maintenance can be obtained from *Erosion Control & Conservation Plantings on Noncropland* (Landschoot, 1997) or a local Cooperative State Research, Education, and Extension Service¹¹ or Natural Resources Conservation Service¹² office.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Hydroseeding*. California Stormwater Quality Association, Sacramento, CA.
<http://www.cabmphandbooks.com/Documents/Construction/EC-4.pdf>.
- Wisconsin Department of Natural Resources. 2003. *Seeding for Construction Site Erosion Control*. Wisconsin Department of Natural Resources, Madison, WI.
http://dnr.wi.gov/org/water/wm/nps/pdf/stormwater/techstds/erosion/Seeding%20For%20Construction%20Site%20Erosion%20Control%20_1059.pdf.

¹¹ <http://www.csrees.usda.gov>

¹² <http://www.nrcs.usda.gov>

Selective Withdrawal

Temperature control in reservoir releases depends on the volume of water storage in the reservoir, the timing of the release relative to storage time, and the level from which the water is withdrawn. Dams capable of selectively releasing waters of different temperatures can provide cooler or warmer water temperatures downstream at times that are critical for other instream resources, such as during periods of fish spawning and development of fry (Fontane et al., 1981; Hansen and Crumrine, 1991). Stratified reservoirs are operated to meet downstream temperature objectives such as to enhance a cold-water or warm-water fishery or to maintain preproject stream temperature conditions. Release temperature may also be important for irrigation (Fontane et al., 1981).

Multilevel intake devices in storage reservoirs allow selective withdrawal of water based on temperature and DO levels. These devices minimize the withdrawal of surface water high in blue-green algae, or of deep water enriched in iron and manganese. Care should be taken in the design of these systems not to position the multilevel intakes too far apart because this will increase the difficulty with which withdrawals can be controlled, making the discharge of poor-quality hypolimnetic water more likely (Howington, 1990; Johnson and LaBounty, 1988; Smith et al., 1987).

Channelization

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- Instream/riparian restoration

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Erosion

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Setbacks

Where setbacks have been implemented to reduce the hazard of coastal land loss, they have also included requirements for the relocation of existing structures located within the designated setback area. Setbacks can also include restrictions on uses of waterfront areas that are not related to the construction of new buildings (Davis, 1987). Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.

In most cases, states have used the local unit of government to administer the program on either a mandatory or voluntary basis. This allows local government to retain control of its land use activities and to exceed the minimum state requirements if this is deemed desirable (NRC, 1990).

Technical standards for defining and delineating setbacks also vary from state to state. One approach is to establish setback requirements for any “high hazard area” eroding at greater than 1 foot per year. Another approach is to establish setback requirements along all erodible shores because even a small amount of erosion can threaten homes constructed too close to the streambank or shoreline. Several states have general setback requirements that, while not based on erosion hazards, have the effect of limiting construction near the streambank or shoreline.

The basis for variations in setback regulations between states seems to be based on several factors, including (NRC, 1990):

- The language of the law being enacted
- The geomorphology of the coast
- The result of discretionary decisions
- The years of protection afforded by the setback
- Other variables decided at the local level of government

From the perspective of controlling NPS pollution resulting from erosion of shorelines and streambanks, the use of setbacks has the immediate benefit of discouraging concentrated flows and other impacts of storm water runoff from new development in areas close to the streambank or shoreline. In particular, the concentration of storm water runoff can aggravate the erosion of shorelines and streambanks, leading to the formation of gullies, which are not easily repaired. Therefore, drainage of storm water from developed areas and development activities located along the shoreline should be directed inland to avoid accelerating slope erosion.

The most significant NPS benefits are provided by setbacks that not only include restrictions on new construction along the shore but also contain additional provisions aimed at preserving and protecting coastal features such as beaches, wetlands, and riparian forests. This approach

Channelization

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- Instream/riparian restoration

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Erosion

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- Structural
- Integrated
- Planning & regulatory

promotes the natural infiltration of surface water runoff before it passes over the edge of the bank or bluff and flows directly into the coastal waterbody. Setbacks also help protect zones of naturally occurring vegetation growing along the shore. As discussed in the section on “bioengineering practices,” the presence of undisturbed shoreline vegetation itself can help to control erosion by removing excess water from the bank and by anchoring the individual soil particles of the substrate.

Almost all states and territories with setback regulations have modified their original programs to improve effectiveness or correct unforeseen problems (NRC, 1990). Experiences have shown that procedures for updating or modifying the setback width need to be included in the regulations. For instance, application of a typical 30-year setback standard in an area whose rate of erosion is 2 feet per year results in the designation of a setback width of 60 feet. This width may not be sufficient to protect the beaches, wetlands, or riparian forests whose presence improves the ability of the streambank or shoreline to respond to severe wave and flood conditions, or to high levels of surface water runoff during extreme precipitation events. A setback standard based on the landward edge of streambank or shoreline vegetation is one alternative that has been considered (NRC, 1990; Davis, 1987).

From the standpoint of NPS pollution control, an approach that designates streambanks, shorelines, wetlands, beaches, or riparian forests as a special protective feature, allows no development on the feature, and measures the setback from the landward side of the feature is recommended (NRC, 1990). In some cases, provisions for soil bioengineering, marsh creation, beach nourishment, or engineering structures may also be appropriate since the special protective features within the designated setbacks can continue to be threatened by uncontrolled erosion of the shoreline or streambank. Finally, setback regulations should recognize that some special features of the streambank or shoreline will change position. For instance, beaches and wetlands can be expected to migrate landward if water levels continue to rise. Alternatives for managing these situations include flexible criteria for designating setbacks, vigorous maintenance of beaches and other special features within the setback area, and frequent monitoring of the rate of streambank or shoreline erosion and corresponding adjustment of the setback area.

Shoreline Sensitivity Assessment

Currently there are no complete, universal assessment methodologies that apply to all shorelines and assess erosion vulnerabilities in various types of lakes, reservoirs, estuaries, and coasts. The methods presented by NOAA and the U.S. Geological Survey (USGS) were originally developed for other purposes and are being applied for other shoreline assessments:

- Environmental Sensitivity Mapping
- USGS Coastal Classification (Coastal & Marine Geology Program)
- Coastal Vulnerability Index (CVI) (focus is on SLR—the “erosion” factor may be the only relevant factor in CVI)

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
 - Vegetative
 - Structural
 - Integrated
 - Planning & regulatory

Environmental Sensitivity Mapping

The Environmental Sensitivity Index (ESI) was originally created for NOAA to prioritize areas for environmental cleanup (mainly oil-spills), to assist spill-response coordinators in evaluating the potential impact of oil along a shoreline, and to facilitate the allocation of resources during and after a spill.

ESI maps are comprised of three general types of information (NOAA, 1997):

- Shoreline Classification—ranked according to a scale relating to sensitivity, natural persistence of oil, and ease of cleanup.
- Biological Resources—including oil-sensitive animals and rare plants as well as habitats that are used by oil-sensitive species or are themselves sensitive to oil spills, such as submersed aquatic vegetation and coral reefs.
- Human-Use Resources—specific areas that have added sensitivity and value because of their use, such as beaches, parks and marine sanctuaries, water intakes, and archaeological sites.

The standardized ESI shoreline guideline rankings include estuarine, lacustrine, riverine, and palustrine habitats (NOAA, 1997). The classification scheme is based on an understanding of the physical and biological character of the shoreline environment, not just the substrate type and grain size. Relationships among physical processes, substrate type, and associated biota produce specific geomorphic/ecologic shoreline types, sediment transport patterns, and predictable patterns in oil behavior and biological impact. The concepts relating natural factors to the relative sensitivity of coastline, mostly developed in the estuarine setting, were slightly modified for lakes and rivers. The sensitivity ranking is controlled by the following factors:

- Relative exposure to wave and tidal energy
- Shoreline slope

- Substrate type (grain size, mobility, penetration and/or burial, and trafficability)
- Biological productivity and sensitivity

ESI maps have proven to have a long-term use, and they are excellent tools for studying shoreline change and its effects on the distribution and concentration of plants and animals living near the coast. Environmental sensitivity mapping is still evolving, and NOAA researchers are working with federal, state, and private industry partners to improve the ESI mapping system to extend beyond spill response.

USGS Coastal Classification (Coastal & Marine Geology Program)

The objective of the Coastal Classification Map is to determine the hazard vulnerability of an area. The coastal geomorphic classification scheme utilizes morphology and human modifications of the coast as the primary basis for hazard assessment. It emphasizes physical factors that influence erosion, overwash of sandy beaches and barrier islands, and landward sediment transport during storms along and across those features (USGS, 2004).

USGS National Assessment of Coastal Vulnerability to Sea-Level Rise

The USGS Coastal and Marine Geology Program's National Assessment, seeks to determine the relative risks due to future sea-level rise for the U.S. Atlantic, Pacific, and Gulf of Mexico coasts (USGS, 2002). Through the use of a CVI, the relative risk that physical changes will occur as sea-level rises is quantified based on the following criteria: tidal range, wave height, coastal slope, shoreline change, geomorphology, and historical rate of relative sea-level rise. This approach combines a coastal system's susceptibility to change with its natural ability to adapt to changing environmental conditions, and yields a relative measure of the system's natural vulnerability to the effects of sea-level rise.

In 2001, USGS in partnership with the National Park Service (NPS) Geologic Resources Division, began conducting hazard assessments and creating map products to assist the NPS in managing vulnerable coastal resources. One of the most important and practical issues in coastal geology is determining the physical response of coastal environments to water-level changes.

Additional Resources

- NOAA. 1997. *Environmental Sensitivity Index Guidelines (Version 3)* Chapter 2. Seattle, WA. http://response.restoration.noaa.gov/book_shelf/876_chapter2.pdf.
- USGS. 2002. *Vulnerability of US National Parks to Sea-Level Rise and Coastal Change*. U.S. Geological Survey. <http://pubs.usgs.gov/fs/fs095-02/fs095-02.html>.
- USGS. 2004. *Coastal Classification Mapping Project*. U.S. Geological Survey, Coastal & Marine Geology Program. <http://coastal.er.usgs.gov/coastal-classification/class.html>.

Site Fingerprinting

Often areas of a construction site are unnecessarily cleared. The total amount of disturbed area can be reduced with site fingerprinting, which involves placing development in the most environmentally sound locations on the site and minimizing the size of disturbed area. With site fingerprinting, only those areas essential for completing construction activities are cleared. The remaining area is left undisturbed.

Fingerprinting places development away from environmentally sensitive areas (wetlands, steep slopes, etc.), areas for future open space and restoration, areas where trees are to be saved, and temporary and permanent vegetative buffer zones.

The proposed limits of land disturbance can be physically marked off to ensure that only the land area required for buildings, roads, and other infrastructure is cleared. Existing vegetation, especially vegetation on steep slopes, can be avoided.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

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- Runoff control
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- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Sodding

Sodding permanently stabilizes an area with a thick vegetative cover. Sodding provides immediate stabilization of an area and can be used in critical areas or where establishing permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is high erosion potential during the period of vegetative establishment from seeding. According to the Soil Quality Institute (SQI, 2000), soils that have been compacted by grading should be broken up or tilled before placing sod.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods*. Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sodding*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.6_sodding.pdf.

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Soil Protection

Unprotected stockpiles are very prone to erosion, and they must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles can be stabilized by erosion blankets, seeding, or mulching.

Because of the high organic content of topsoil, it is not recommended for use as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards, and topsoil might need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

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Spill and Water Budgets

Although often used together, spill and water budgets are independent methods of facilitating downstream fish migration. Spill budgets provide alternative methods for fish passage that are less dangerous than passage through turbines. Spillways are used to allow fish to leave the reservoir by passing over the dam rather than through the turbines. The spillways must be designed to ensure that hydraulic conditions do not induce injury to the passing fish from scraping and abrasion, turbulence, rapid pressure changes, or supersaturation of dissolved gases in water passing through plunge pools (Stone and Webster, 1986).

In the Columbia River basin (Pacific Northwest), the USACE provides spill on a limited basis to pass fish around specific dams to improve survival rates. At key dams, spill is used in special operations to protect hatchery releases or provide better passage conditions until bypass systems are fully developed or, in some cases, improved (van der Borg and Ferguson, 1989). The cost of this alternative depends on the volume of water lost for power production (Mattice, 1990). Analyses of this practice, using a USACE model called FISHPASS, historically has shown that application of spill budgets in the Columbia River basin is consistently the most costly and least efficient method of improving overall downstream migration efficiency (Dodge, 1989).

In 1995 the National Marine Fisheries Service (NMFS) released a draft biological opinion to save Columbia River Basin salmon. The opinion was issued after concluding that current operations of the hydropower system were jeopardizing Columbia Basin salmon. The opinion addresses safer passage for young fish through the dams and modification to a number of hydropower operations and facilities. It calls for using as much water as possible during fish-passage season to improve flow for fish moving through the system. Specifically the draft called for spilling water over dams to increase passage of juvenile salmon via non-turbine routes to at least 80 percent. The USACE now runs the Juvenile Fish Transportation Program in cooperation with NMFS (NOAA, 1995; USACE, 2002b).

Water budgets increase flows through dams during the out-migration of anadromous fish species. They are used to speed smolt migration through reservoirs and dams. Water normally released from the impoundment during the winter period to generate power is instead released in May or June, when it can be sold only as secondary energy. This concept has been used in some regions of the United States, although quantification of the overall benefits is lacking (Dodge, 1989).

The volume of a typical water budget is generally not adequate to sustain minimum desirable flows for fish passage during the entire migration period. The Columbia Basin Fish and Wildlife Authority has proposed replacement of the water budget on the Columbia River system with a minimum flow requirement to prevent problems of inadequate water volume in discharge during low-flow years (Muckleston, 1990).

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Spill Prevention and Control Program

Spill procedure information can be posted, and persons trained in spill handling should be onsite or on call at all times. Materials for cleaning up spills can be kept onsite and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed.

In general, a spill prevention, control, and countermeasure (SPCC) plan can include guidance to site personnel on:

- Proper notification when a spill occurs
- Site responsibility with respect to addressing the cleanup of a spill
- Stopping the source of a spill
- Cleaning up a spill
- Proper disposal of materials contaminated by the spill
- Location of spill response equipment programs
- Training program for designated on-site personnel

A periodic spill “fire drill” can be conducted to help train personnel on proper responses to spill events and to keep response actions fresh in the minds of personnel. It is important to maintain an adequate spill and cleaning kit, which could include the following:

- Detergent or soap, hand cleaner, and water
- Activated charcoal, adsorptive clay, vermiculite, kitty litter, sawdust, or other adsorptive materials
- Lime or bleach to neutralize pesticides or other spills in emergency situations
- Tools such as a shovel, broom, and dustpan and containers for disposal
- Proper protective clothing

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Spillway Modifications

Spill at hydroelectric dams is routinely required during periods of high runoff when the river discharge exceeds what can be passed through the powerhouse turbines. In some cases, spill has been associated with gas supersaturation problems. The USACE has proposed several practices for solving the gas supersaturation problem. These include (1) passing more headwater storage through turbines, installing new fish bypass structures, and installing additional power units to reduce the need for spill; (2) incorporating “flip-lip” deflectors in spillway-stilling basins, transferring power generation to high-dissolved-gas-producing dams, and altering spill patterns at individual dams to minimize nitrogen mass entrainment; and (3) collecting and transporting juvenile salmonids around affected river reaches. Only a few of these practices have been implemented (Tanovan, 1987).

As more attention is being paid to maintaining minimum flows in rivers for fish passage and spawning, managers are balancing the need for spills with the potential impacts of gas supersaturation (Anderson, 2004; Anderson, 1995; DeHart, 2003; USFWS, 2001; Van Holmes and Anderson, 2004). For example, the U.S. Fish and Wildlife Service has routinely monitored gas supersaturation in reaches below Bonneville Dam (Columbia River, Oregon) to protect migrating salmon, many of which are endangered species (USFWS, 2001).

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- Planning & regulatory

Surface Roughening

Roughening is the scarifying of a bare sloped soil surface with horizontal grooves or benches running across the slope. Roughening aids the establishment of vegetative cover, improves water infiltration, and decreases runoff velocity.

Additional Resource

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Surface Roughening*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/sr.pdf.

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Toe Protection

A number of qualitative advantages are to be gained by providing toe protection for vertical bulkheads. Toe protection usually takes the form of a stone apron installed at the base of the vertical structure to reduce wave reflection and scour of bottom sediments during storms. The installation of rubble toe protection should include filter cloth and perhaps a bedding of small stone to reduce the possibility of rupture of the filter cloth. Ideally, the rubble should extend to an elevation such that waves will break on the rubble during storms.

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Stone Toe Protection*. Massachusetts Department of Environmental Protection, Boston, MA.
<http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Stone%20Toe%20Protection.pdf>.
- Wisconsin Department of Natural Resources. 2006. *Vegetated Armoring Erosion Control Methods*. <http://dnr.wi.gov/org/water/fhp/waterway/erosioncontrol-vegetated.html>.

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Training—ESC

Provide education and training opportunities for designers, developers, and contractors. One of the most important factors determining whether ESCs will be properly installed and maintained on a construction site is the knowledge and experience of the contractor and onsite personnel. Many communities require certification for key on-site employees who are responsible for implementing the ESC plan. Certification can be accomplished through municipally sponsored training courses; more informally, municipalities can hold mandatory preconstruction or prewintering meetings and conduct regular and final inspection visits to transfer information to contractors (Brown and Caraco, 1997). Information that can be covered in training courses and meetings includes the importance of ESC for water quality protection; developing and implementing ESC plans; the importance of proper installation, regular inspection, and diligent maintenance of ESC practices; and record keeping for inspections and maintenance activities.

Channelization

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Erosion

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- Structural
- Integrated
- Planning & regulatory

Transference of Fish Runs

Transference of fish runs involves inducing anadromous fish species to use different spawning grounds in the vicinity of an impoundment. To implement this practice, the nature and extent of the spawning grounds that were lost due to the blockage in the river need to be assessed, and suitable alternative spawning grounds need to be identified. The feasibility of successfully collecting the fish and transporting them to alternative tributaries also needs to be carefully determined.

One strategy for mitigating the impacts of diversions on fisheries is the use of ephemeral streams as conveyance channels for all or a portion of the diverted water. If flow releases are controlled and uninterrupted, a perennial stream is created, along with new instream and riparian habitat. However, the biota that had been adapted to preexisting conditions in the ephemeral stream will probably be eliminated.

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Tree Armoring, Fencing, and Retaining Walls or Tree Wells

Tree armoring protects tree trunks and natural vegetation from being damaged by construction equipment. Fencing can also protect tree trunks, but it should be placed at the tree's drip line so that construction equipment is kept away from the tree. A tree's drip line is the minimum area around the tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well can be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots. It is recommended that cutting or filling be done only when absolutely necessary. Fill placement over the tree root flare or within the dripline will eventually kill the tree.

Channelization

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Tree Revetments

Tree revetments consist of a row of interconnected trees anchored to the toe of the streambank or to the upper streambank (Figures 7.28 and 7.29). This serves to reduce flow velocities along eroding streambanks, trap sediment, and provide a substrate for plant establishment and erosion control. This design relies on the installation of an adequate anchoring system and is best suited for streambank heights under 12 feet and bankfull velocities under 6 feet per second. In addition, this structure should occupy no more than 15 percent of the channel at bankfull. Toe protection is needed to accompany this design if scour is anticipated and upper bank soil bioengineering techniques are recommended to ensure streamside regeneration. This design allows for the use of local materials if they are readily available. Decay resistant species are

recommended for the logs to extend the life of the structure and thus the ability of vegetation to become established. Due to decomposition, these structures have a limited life and might require periodic replacement. It is considered beneficial that decomposition of the logs over time allows the streambank to return to a natural state with protection provided by mature streambank

vegetation. There is a potential for the logs to dislodge, and these structures should not be located upstream of bridges or other structures sensitive to damage. Tree revetments are susceptible to damage by ice (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

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| <p>Channelization</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Physical & chemical <input checked="" type="checkbox"/> Instream/riparian restoration <p>Dams</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Erosion control <input type="checkbox"/> Runoff control <input type="checkbox"/> Chemical/pollutant control <input type="checkbox"/> Watershed protection <input type="checkbox"/> Aerate reservoir water <input type="checkbox"/> Improve tailwater oxygen <input type="checkbox"/> Restore/maintain habitat <input type="checkbox"/> Maintain fish passage <p>Erosion</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Streambanks <input checked="" type="checkbox"/> Shorelines <input checked="" type="checkbox"/> Vegetative <input type="checkbox"/> Structural <input type="checkbox"/> Integrated <input type="checkbox"/> Planning & regulatory |
|--|

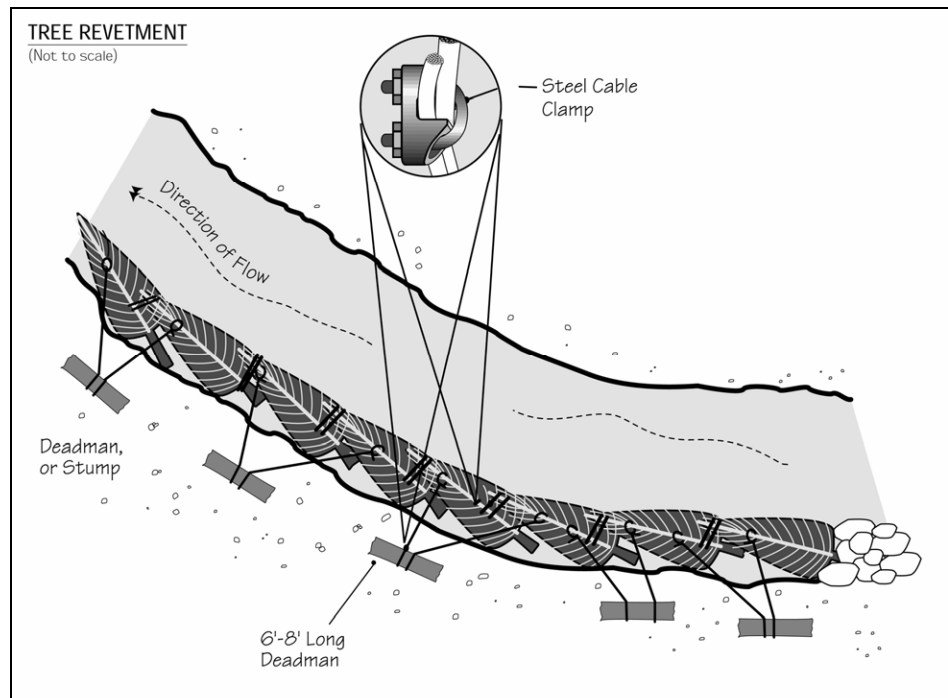


Figure 7.28 Tree Revetment (USDA-FS, 2002)

Additional Resources

- Alaska Department of Fish and Game. 2005. *Spruce Tree Revetment*. http://www.sf.adfg.state.ak.us/sarr/restoration/techniques/images/csbs_strevet.pdf.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Goard, D. 2006. *Riparian Forest Best Management Practices: Tree Revetments*. Kansas State University, Manhattan, KS. <http://www.oznet.ksu.edu/library/forst2/MF2750.pdf>.
- Gough, S. 2004. *Tree Revetments for Streambank Revitalization*. Missouri Department of Conservation, Fisheries Division, Jefferson City, MO. <http://mdc.mo.gov/fish/streams/revetmen/>.

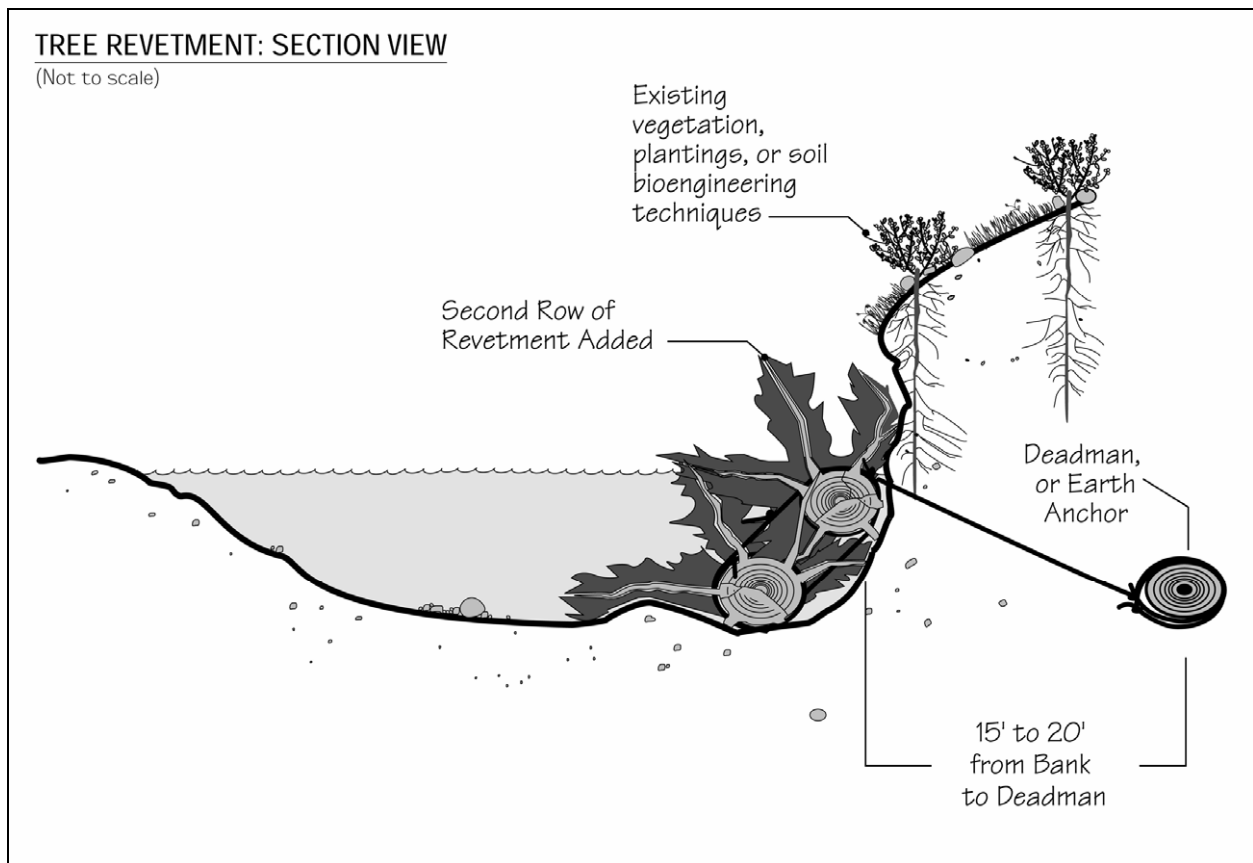


Figure 7.29 Tree Revetment: Section View (USDA-FS, 2002)

Turbine Operation

Implementation of changes in the turbine start-up procedures can also enlarge the zone of withdrawal to include more of the epilimnetic waters in the downstream releases. Monitoring of the releases at the Walter F. George lock and dam (Chattahoochee River, Georgia), showed levels of DO declined sharply at the start-up of hydropower production. The severity and duration of the DO drop were found to be reduced by starting up all the generator units within a minute of each other (Findley and Day, 1987).

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Turbine Venting

Turbine venting is the practice of injecting air into water as it passes through a turbine. If vents are provided inside the turbine chamber, the turbine will aspirate air from the atmosphere and mix it with water passing through the turbine as part of its normal operation. In early designs, the turbine was vented through existing openings, such as the draft tube opening or the vacuum breaker valve in the turbine assembly. Air forced by compressors into the draft tube opening enriched reservoir waters with little detectable DO to concentrations of 3 to 4 mg/L. Overriding the automatic closure of the vacuum breaker valve (at high turbine discharges) increased DO by only 2 mg/L (Harshbarger, 1987).

Turbine venting uses the low-pressure region just below the turbine wheel to aspirate air into the discharges (Wilhelms, 1984). Autoventing turbines are constructed with hub baffles, or deflector plates placed on the turbine hub upstream of the vent holes to enhance the low-pressure zone in the vicinity of the vent and thereby increase the amount of air aspirated through the venting system. Turbine efficiency relates to the amount of energy output from a turbine per unit of water passing through the turbine. Efficiency decreases as less power is produced for the same volume of water. In systems where the water is aerated before passing through the turbine, part of the water volume is displaced by the air, thus leading to decreased efficiency. Hub baffles have also been added to autoventing turbines at the Norris Dam (Clinch River, Tennessee) to further improve the DO levels in the turbine releases (Jones and March, 1991).

Developments in autoventing turbine technology show that it may be possible to aspirate air with no resulting decrease in turbine efficiency. In one test of an autoventing turbine at the Norris Dam, the turbine efficiency increased by 1.8 percent (March et al., 1991; Waldrop, 1992). Technologies like autoventing turbines are very site-specific and outcomes will vary considerably.

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Vegetated Buffers

Like filter strips, vegetated buffers provide a physical separation between a construction site and a waterbody. The difference between a filter strip and a vegetated buffer area is that a filter strip is an engineered device, whereas a buffer is a naturally occurring filter system. Vegetated buffers remove nutrients and other pollutants from runoff, trap sediments, and shade the waterbody to optimize light and temperature conditions for aquatic plants and animals (Welsch, n.d.). Preservation of vegetation for a buffer can be planned before any site-disturbing activities begin so as to minimize the impact of construction activities on existing vegetation. Trees can be clearly marked at the dripline to preserve them and to protect them from ground disturbances around the base of the tree.

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Proper maintenance of buffer vegetation is important. Maintenance requirements depend on the plant species chosen, soil types, and climatic conditions. Maintenance activities typically include fertilizing, liming, irrigating, pruning, controlling weeds and pests, and repairing protective markers (e.g., fluorescent fences and flags).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Vegetated Buffer Strips*. California Stormwater Quality Association, Sacramento, CA. <http://www.cabmphandbooks.com/Documents/Development/TC-31.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Forested Buffer Strips*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs13.htm.
- River Alliance of Wisconsin. No date. *Benefits of Vegetated Buffers*. River Alliance of Wisconsin, Madison, WI. <http://www.wisconsinrivers.org/documents/policy/Fact%20Sheet%20-%20Benefits%20of%20Vegetated%20Buffers.pdf>.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length to provide optimal sediment control and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. For more information on vegetated filter strips, refer to EPA's *National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution* (USEPA, 2005b).

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Vegetative Filter Strip*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.8_veg_filter_strip.pdf.
- Leeds, R., L.C. Brown, M.R. Sulc, and L. VanLieshout. No date. *Vegetative Filter Strips: Application, Installation and Maintenance*. The Ohio State University, Food, Agriculture and Biological Engineering, Columbus, OH. <http://ohioline.osu.edu/aex-fact/0467.html>.
- USDA. 2003. *Grass Filter Strips*. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.oh.nrcs.usda.gov/programs/Lake_Erie_Buffer/filter_strips.html.

Channelization

- Physical & chemical
- Instream/riparian restoration

Dams

- Erosion control
- Runoff control
- Chemical/pollutant control
- Watershed protection
- Aerate reservoir water
- Improve tailwater oxygen
- Restore/maintain habitat
- Maintain fish passage

Erosion

- Streambanks
- Shorelines
- Vegetative
- Structural
- Integrated
- Planning & regulatory

Vegetated Gabions

Vegetated gabions (Figure 7.30) start with wire-mesh, rectangular baskets filled with small to medium rock and soil. The baskets are then laced together to form a structural toe or sidewall. Live branches (0.5 to 1 inch in diameter) are then placed on each consecutive layer between the rock filled baskets to take root, join together the structure, and bind it to the slope. This method is effective for protecting steep slopes where scouring or undercutting is occurring. However, this method is not appropriate in streams with heavy bed load or where severe ice damage occurs. This method provides moderate structural support and should be placed at the base of a slope to stabilize the slope and reduce slope steepness. A stable foundation is required for the installation of these structures. When the rock size needed is not locally available, this design is effective because smaller rocks can be used. A limiting factor of this method is that it is expensive to install and to replace. These structures are relatively expensive to construct and frequently require costly repairs. This method should be combined with other soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998). There is often opposition to these structures based on their inability to blend in with natural settings and their general lack of aesthetically pleasing qualities (Gore, 1985).

Installation guidelines are available from the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under EMRRP, the USACE has presented research on vegetated gabions in a technical note (*Gabions for Streambank Erosion Control*).¹³

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Erosion

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- Vegetative
- Structural
- Integrated
- Planning & regulatory

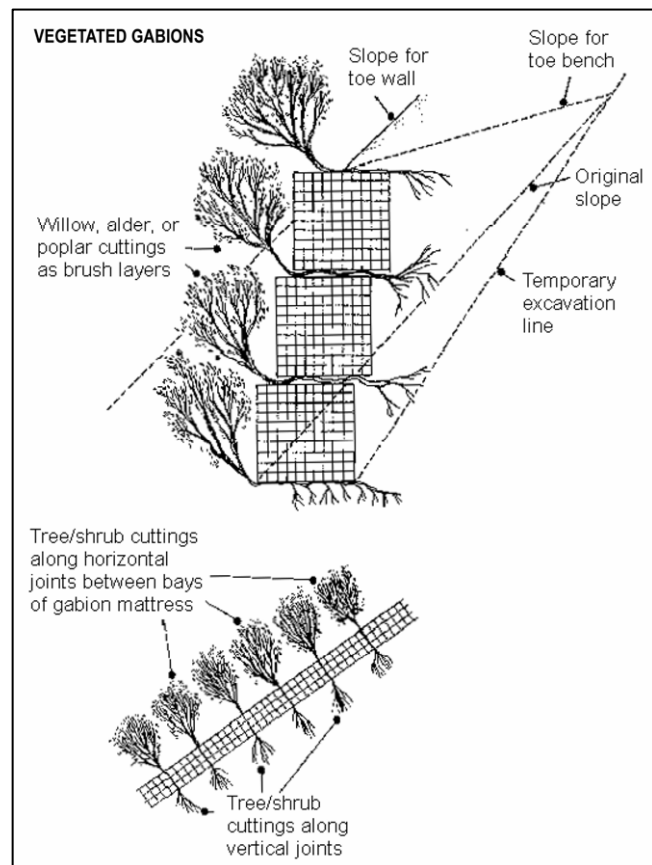


Figure 7.30 Vegetated Gabion (Allen and Leech, 1997)

¹³ <http://el.erdc.usace.army.mil/elpubs/pdf/sr22.pdf>

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group.
http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Gabion*. Iowa State University.
http://www.ctre.iastate.edu/erosion/manuals/construction/3.8_gabion.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Rock Gabions/Gabions*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/veg_rockgabions.pdf.
- MMG Civil Engineering Systems, Ltd. 2001. *Vegetated Gabions*. MMG Civil Engineering Systems, Ltd., St. Germans, Kings Lynn, Norfolk, England.
<http://www.verdantsolutions.ltd.uk/acrobat/vegsod.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Gabion Revetments*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs15.htm.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Gabion*. Tennessee Department of Environment and Conservation, Nashville, TN.
http://state.tn.us/environment/wpc/sed_ero_controlhandbook/ga.pdf.

Vegetated Geogrids

Vegetated geogrids consist of layers of live branch cuttings and compacted soil with natural or synthetic geotextile materials wrapped around each soil layer (Figure 7.31). This serves to rebuild and vegetate eroded streambanks, particularly on outside bends where erosion can be a problem. This system is designed to capture sediment providing a substrate for plant establishment and if properly designed and installed, these systems help to quickly establish riparian vegetation. Its benefits are similar to those of brush layering (e.g., dries excessively wet sites, reinforces soil as roots develop, which adds significant resistance to sliding or shear displacement). Due to the strength of this design and the higher initial tolerance to flow velocity, these systems can be installed on a 1:1 or steeper streambank or lakeshore. Limitations of this design include the complexity involved with constructing this system and the fairly high expense (FISRWG, 1998). When constructing this type of system, use live branch cuttings that are brushy and root readily. Also use cuttings that are 0.5 to 2 inches in diameter and 4 to 6 feet long. This type of system requires biodegradable erosion control fabric. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

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Erosion

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- Vegetative
- Structural
- Integrated
- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Vegetated Geogrids*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Vegetated%20Geogrids.pdf>.
- ISU. 2006. *How to Control Streambank Erosion: Vegetated Geogrids*. Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/vegetated_geogrids.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Geogrids*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/vegegeogrids.pdf>.

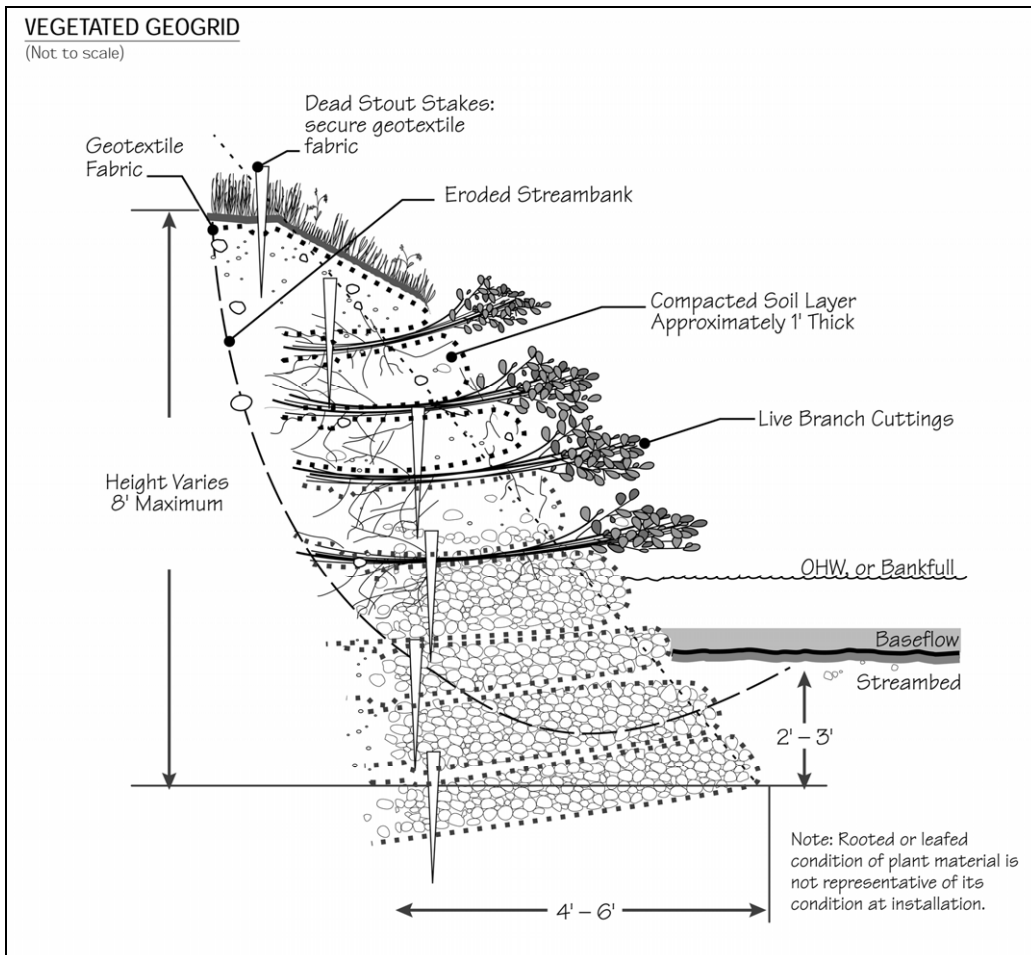


Figure 7.31 Vegetated Geogrid (USDA-FS, 2002)

Vegetated Reinforced Soil Slope (VRSS)

The vegetated reinforced soil slope (VRSS) soil system (Figures 7.32 and 7.33) is an earthen structure constructed from living, rootable, live-cut, woody plant material branches, bare root, tubling or container plant stock, along with rock, geosynthetics, geogrids, and/or geocomposites. The VRSS system is useful for immediately repairing or preventing deeper failures, providing a structurally sound system with soil reinforcement, drainage, and erosion control (typically on steepened slope sites with limited space). Living cut branches and plants grow and perform additional soil reinforcement via the roots and surface protection via the top growth (Sotir and Fischenich, 2003).

Live vegetation is typically installed from just above baseflow elevation and up the face of the reconstructed streambank, acting to protect the bank through immediate soil reinforcement and confinement, drainage, and, in the toe area, with rock. The system extends below the depth of scour, typically with rock, which improves infiltration and supports the riparian zone. Internal systems (e.g., rock, live cut branches) can be configured to act as drains that redirect or collect internal bank seepage and transport water to the stream via a rock toe (Sotir and Fischenich, 2003).

Plants may be selected to provide color, texture, and other attributes to add a natural landscape appearance. Examples of plants include dogwood, willow, hibiscus, and *Viburnum* spp. Check with your local NRCS office to make sure these are appropriate for the location. If a compound channel cross section is desirable near or just below the baseflow elevation, a step-back terrace may be incorporated to offer an enhanced riparian zone where emergent aquatic plants may invade over time. Although the total mass uptake may be small, they assimilate contaminants within the water column. Aquatic wetland plants that may be installed adjacent to the stream include blueflag, monkey flower, and pickerelweed. Again, check with your local NRCS office to ensure these are appropriate. VRSS systems can be constructed on slopes ranging from 1V on 2H (1:2) to 1:0.5. When constructed in step or terrace fashion, they improve pollutant control by intercepting sediment and attached pollutants during overbank flows (Sotir and Fischenich, 2003). Additional information about VRSS systems is available from USACE's *Vegetated Reinforced Soil Slope Streambank Erosion Control*.¹⁴

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Figure 7.32 VRSS Structure After Construction (Sotir and Fischenich, 2003)



Figure 7.33 Established VRSS Structure (Sotir and Fischenich, 2003)

¹⁴ <http://el.erdc.usace.army.mil/elpubs/pdf/sr30.pdf>

Water Conveyances

These are the open or closed channel, conduit, or drop structure used to convey water from a reservoir. The USACE has studied the performance of spillways and overflow weirs at its facilities to determine the importance of these structures in improving DO levels. For example, data have been analyzed for the test spill done in 1999 at Canyon Ferry Dam in Montana, which found that allowing a portion of the releases to go over the spillways resulted in a significant increase in DO in the river downstream of the dam. Initially the use of spillways appeared to be a viable solution to the problem of low dissolved oxygen in the river below the dam. However, there was a problem with nitrogen supersaturation.

The operation of some types of hydraulic structures has been linked to problems of the supersaturation. An unexpected fish kill occurred in spring 1978 due to supersaturation of nitrogen gas in the Lake of the Ozarks (Missouri) within 5 miles of Truman Dam, caused by water plunging over the spillway and entraining air. The vertical drop between the spillway crest and the tailwaters was only 5 feet. The maximum total gas saturation was 143 percent, which is well above desired saturation levels. In this case, the spillway was modified by cutting a notch to prevent water from plunging directly into the stilling basin (ASCE, 1986).

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Wildflower Cover

Because of the hardy, drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. Though not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. An additional benefit of wildflower thatches is that they provide habitat for wildlife, including insects and small mammals. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides and watering is minimal, implementation of this practice may result in cost savings.

A wildflower stand requires several years to become established, but maintenance requirements are minimal once established. Prices vary greatly, from less than \$15 (Stock Seed Farms, n.d.) to \$40 (Albright Seed Company, 2002) a pound, for wildflower seed mixes. The amount of wildflower seeds applied depends on the desired coverage of wildflowers. However, Stock Seed Farms recommends that one pound of seed can cover 3,500 ft² (Stock Seed Farms, n.d.). Keep in mind that species selection should focus on those wildflowers and grasses native to the given area or appropriate to the site.

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Wind Erosion Controls

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fences, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 2003); however, applications must be monitored to prevent excessive runoff and erosion.

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Wing Deflectors

Wing deflectors are structures that protrude from either streambank but do not extend entirely across a channel. The structures are designed to deflect flows away from the bank, and create scour pools by constricting the channel and accelerating flow. The structures can be installed in series on alternative streambanks to produce a meandering thalweg and stream diversity. The most common design is a rock and rock-filled log crib deflector structure. The design bases the size of the structure on anticipated scour. These structures need to be installed far enough downstream from riffle areas to avoid backwater effects that could drown out or damage the riffle. This design should be employed in streams with low physical habitat diversity, particularly channels that lack pool habitats. Construction on a sand bed stream may be susceptible to failure and should be constructed with the use a filter layer or geotextile fabric beneath the wing deflector structure (FISRWG, 1998).

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- Vegetative
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- Planning & regulatory

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Wing Deflectors*. Massachusetts Department of Environmental Protection, Boston, MA. <http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Wing%20Deflectors.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Single Wing Deflector*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/singlewing.pdf>.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Double Wing Deflector*. Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. <http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/doublewing.pdf>.
- Ohio DNR. No date. *Ohio Stream Management Guide: Deflectors*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs19.pdf.
- SMRC. No date. *Stream Restoration: Flow Deflection/Concentration Practices*. The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/flow_deflection.htm.

Chapter 8: Modeling Information

Physical and chemical effects of hydraulic and hydrologic changes to streams, rivers, or other surface water systems can often be estimated with models and past experience (expert judgment). Several different models are available that can simulate many of the complex physical, chemical, and biological interactions that occur when hydraulic changes are imposed on surface water systems. Additionally, models can sometimes be used to determine a combination of practices to mitigate the unavoidable effects that occur even when a project is properly planned. Models, however, cannot be used independently of expert judgment gained through past experience. When properly applied models are used in conjunction with expert judgment, the effects of hydromodification activities (both potential and existing projects) can be evaluated and many undesirable effects prevented or eliminated. Models combined with expert judgment can also be used to evaluate existing hydromodification activities as part of operation and maintenance programs to identify possible opportunities to reduce or eliminate water quality impacts.

In the U.S. Army Corps of Engineers' (USACE's) report, *Review of Watershed Water Quality Models*¹ (Deliman et al., 1999), the authors compare and evaluate existing hydrologic and watershed water quality models, make recommendations for base model(s) for predicting nonpoint source (NPS) pollution, and identify areas for model improvement. The authors review commonly used and well validated models used in urban or nonurban settings. Users of the models can use the report to obtain basic model information and to review how well the models simulate NPS pollution and where the authors think improvements could be made. This information might be useful to readers who are trying to select the best model for analyzing how to reduce NPS pollution in their watersheds (Deliman et al., 1999).

Tables 8.1 and 8.2 below provided example of models and assessment approaches that could be used to determine the effects of hydromodification activities.

¹ <http://el.erdc.usace.army.mil/elpubs/pdf/trw99-1.pdf>

Available Models and Assessment Approaches

Table 8.1 lists some of the models available for studying the effects of channelization and channel modification activities, as well as models to analyze watershed runoff and to assess BMPs and low impact development to reduce impacts (of hydromodification activities.) The table also provides a quick description of each model and the dimension in which it models, as well as source and contact information.

Table 8.1 Models Applicable to Hydromodification Activities

Model	Dimension	Description	Model Resources
<i>Channelization and Channel Modification Models</i>			
BRANCH	1	The Branch-Network Dynamic Flow Model is used to simulate steady state flow in a single open channel reach or throughout a system of branches connected in a dendritic or looped pattern. The model is typically applied to assess flow and transport in upland rivers where flows are highly regulated or backwater effects are evident, or in coastal networks of open channels where flow and transport are governed by the interaction of freshwater inflows, tidal action, and meteorological conditions. (Last updated: 1997)	http://water.usgs.gov/cgi-bin/man_wrdapp?branch
CE-QUAL-RIV1	1	CE-QUAL-RIV1 is a one-dimensional (cross-sectionally averaged) hydrodynamic and water quality model, meaning that the model resolves longitudinal variations in hydraulic and quality characteristics and is applicable where lateral and vertical variations are small. CE-QUAL-RIV1 consists of two parts, a hydrodynamic code (RIV1H) and a water quality code (RIV1Q). The hydrodynamic code is applied first to predict water transport and its results are written to a file, which is then read by the quality model. It can be used to predict one-dimensional hydraulic and water quality variations in streams and rivers with highly unsteady flows, although it can also be used for prediction under steady flow conditions.	http://www.wes.army.mil/el/elmodels/riv1info.html

Model	Dimension	Description	Model Resources
CE-QUAL-W2	2	CE-QUAL-W2 is a two-dimensional, laterally averaged, finite difference hydrodynamic and water quality model for rivers, reservoirs, and estuaries. Because the model assumes lateral homogeneity, it is best suited for relatively long and narrow waterbodies exhibiting longitudinal and vertical water quality gradients. Branched networks can be modeled. The model accommodates variable grid spacing (segment lengths and layer thicknesses) so that greater resolution in the grid can be specified where needed.	http://smig.usgs.gov/cgi-bin/SMIC/model_home_pages/model_home?selection=cequalw2 http://www.ce.pdx.edu/w2
CH3D-SED	1, 2, or 3	The CH3D numerical modeling system can be used to investigate sedimentation on bendways, crossings, and distributaries. Applications address dredging, channel evolution, and channel training structure evaluations.	http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=Software;22
EFDC	1, 2, or 3	The Environmental Fluid Dynamics Code is a single source, three-dimensional, finite-difference modeling system having hydrodynamic, water quality-eutrophication, sediment transport and toxic contaminant transport components linked together.	John Hamrick developed this at the Virginia Institute of Marine Science 1990-1991. Dr. John Hamrick, Tetra Tech, Inc. 10306 Eaton Place, Suite 340 Fairfax, VA 22030
EFM	1	Ecosystem Functions Model (EFM) is a planning tool that analyzes ecosystem response to changes in flow regime. EFM allows environmental planners, biologists, and engineers to determine whether proposed alternatives (e.g., reservoir operations, levee alignments) would maintain, enhance, or diminish ecosystem health. Project teams can use EFM software to visualize existing ecologic conditions, highlight promising restoration sites, and assess and rank alternatives according to the relative enhancement (or decline) of ecosystem aspects. The hydraulic modeling portion of the EFM process is performed by existing independent software, such as HEC-RAS.	http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-4.pdf

Model	Dimension	Description	Model Resources
FESWMS-2DH	2	FESWMS-2DH is a finite element surface water modeling system for two-dimensional flow in a horizontal plane. The model can simulate steady and unsteady surface water flow and is useful for simulating two-dimensional flow where complicated hydraulic conditions exist (e.g., highway crossings of streams and flood rivers). It can also be applied to many types of steady or unsteady flow problems. (Last updated: 1995)	http://water.usgs.gov/cgi-bin/man_wrdapp?feswms-2dh
HEC-6	1	HEC-6 is a one-dimensional, moveable boundary, open channel flow numeric model designed to simulate and predict changes in river profiles resulting from scour and deposition over moderate time periods, typically years. Latest revision occurred in 1993.	http://www.hec.usace.army.mil/software/legacysoftware/hec6/hec6.htm
HEC-HMS	1	The HEC-HMS model is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is applicable in a wide range of geographic areas for solving the widest possible range of problems, including large river basin water supply and flood hydrology, and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation.	http://www.hec.usace.army.mil/software/hec-hms/index.html http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-3.pdf

Model	Dimension	Description	Model Resources
HEC-RAS	1	<p>HEC-RAS is an integrated system of software, designed for interactive use in a multi-tasking, multi-user network environment. The system is comprised of a graphical interface (GUI), separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The model performs one-dimensional steady flow, unsteady flow, and sediment transport calculations. The key element is that all three components will use a common geometric data representation and common geometric and hydraulic computation routines. In addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once basic water surface profiles are computed. The HEC-RAS modeling system was developed as a part of the Hydrologic Engineering Center's "Next Generation" (NexGen) of hydrologic engineering software. The NexGen project encompasses several aspects of hydrologic engineering, including: rainfall-runoff analysis; river hydraulics; reservoir system simulation; flood damage analysis; and real-time river forecasting for reservoir operations.</p>	<p>http://www.hec.usace.army.mil/software/hec-ras</p>
HIVEL2D	1, 2	<p>HIVEL2D is a free-surface, depth averaged model designed specifically to simulate flow in typical high-velocity channels.</p>	<p>http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;6</p>
RiverWare™	1	<p>RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the USACE sponsor ongoing RiverWare™ research and development.</p>	<p>http://cadswes.colorado.edu/riverware</p>

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Model	Dimension	Description	Model Resources
SAM	1	The model calculates the width, depth, slope and n-values for stable channels in alluvial material. SAM can be used to evaluate erosion, entrainment, transportation, and deposition in alluvial streams. Channel stability can be evaluated, and the evaluation used to determine the cost of maintaining a constructed project. The model is currently being improved and enhanced at WES.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;2
SIAM	N/A	SIAM is a model designed to simulate the movement of sediment through a drainage network from source to outlet. It allows for evaluation of numerous sediment management alternatives relatively quickly. The model provides an intermediate level of analysis more quantitative than a conventional geomorphic evaluation, but less specific than a numerical, mobile-boundary simulation. SIAM is to be incorporated into a future release of HEC-RAS.	http://www.usbr.gov/pmts/sediment/model/srhSIAM/index.html http://www.wes.army.mil/rsm/pubs/pdfs/RSM-2-WS04.pdf
SMS (RMA2 and RMA4)	1, 2	The Surface-Water Modeling System is a generalized numerical modeling system for open-channel flows, sedimentation, and constituent transport.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;4
TABS-MD (RMA2, RMA4, RMA10, SED2D)	1, 2, or 3	The multi-dimensional numerical modeling system is a collection of generalized computer programs and utility codes, designed for studying multidimensional hydrodynamics in rivers, reservoirs, bays, and estuaries. The models can be applied to study project impacts of flows, sedimentation, constituent transport, and salinity.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;10
WASP	1, 2, or 3	Water Quality Analysis Simulation Program. Framework for modeling contaminant fate and transport in surface waters. The WASP framework can be used to model biochemical oxygen demand and dissolved oxygen dynamics, nutrients and eutrophication, bacterial contamination, and organic chemical and heavy metal contamination.	http://www.epa.gov/athens/wwqtsc/html/wasp.html

Model	Dimension	Description	Model Resources
Models to Analyze Watershed Runoff and Assess Practices to Reduce Impacts of Hydromodification			
BMP Decision Support System (BMP-DSS)	1	BMP-DSS is a decision-making tool for placement of BMPs/LID practices at strategic locations in urban watersheds based on integrated data collection and hydrologic/hydraulic/water quality modeling. The system uses GIS technology, integrates BMP processes simulation models, and applies system optimization techniques for BMP placement and selection. The system also provides interfaces for BMP placement, BMP attribute data input, and decision optimization management. The system includes a stand-alone BMP simulation and evaluation module, which complements both research and regulatory nonpoint source control assessment efforts and allows flexibility in examining various BMP design alternatives.	Developed by the EPA and Prince George's County Department of Environmental Resources. Contact Dr. Mow-Soung Cheng at 301-883-5836 for more information.
HSPF	1	Hydrological Simulation Program—FORTRAN (HSPF) is a comprehensive package for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants. HSPF incorporates watershed-scale ARM and NPS models into a basin-scale analysis framework that includes fate and transport in one dimensional stream channels. It is the only comprehensive model of watershed hydrology and water quality that allows the integrated simulation of land and soil contaminant runoff processes with in-stream hydraulic and sediment-chemical interactions. The result of this simulation is a time history of the runoff flow rate, sediment load, and nutrient and pesticide concentrations, along with a time history of water quantity and quality at any point in a watershed. HSPF simulates three sediment types (sand, silt, and clay) in addition to a single organic chemical and transformation products of that chemical.	http://www.epa.gov/ceampubl/swater/hspf/index.htm

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Model	Dimension	Description	Model Resources
LSPC	1	LSPC is the Loading Simulation Program in C++, a watershed modeling system that includes streamlined Hydrologic Simulation Program Fortran (HSPF) algorithms for simulating hydrology, sediment, and general water quality on land as well as a simplified stream transport model. LSPC is derived from the Mining Data Analysis System (MDAS), which was developed by EPA Region 3 and has been widely used for mining applications and TMDLs. A key data management feature of this system is that it uses a Microsoft Access database to manage model data and weather text files for driving the simulation. The system also contains a module to assist in TMDL calculation and source allocations. For each model run, it automatically generates comprehensive text-file output by subwatershed for all land-layers, reaches, and simulated modules, which can be expressed on hourly or daily intervals. Output from LSPC has been linked to other model applications such as EFDC, WASP, and CE-QUAL-W2.	http://www.epa.gov/ATHENS/wwqtsc/html/lspc.html
Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds—Urban Catchment Model (P8-UCM)	1	P8-UCM is a model for predicting the generation and transport of stormwater pollutants in urban watersheds. Continuous water balance and mass balance calculations are performed on a user-defined system consisting of watersheds, devices (runoff storage/treatment areas, BMPs), particle classes, and water quality components. Simulations are driven by continuous hourly rainfall and daily air temperature time series data. The model simulates pollutant transport and removal in a variety of treatment devices (BMPs).	http://www.walker.net/p8

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Model	Dimension	Description	Model Resources
Storm Water Management Model (SWMM)	1	SWMM is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas. The runoff component of SWMM operates on a collection of subcatchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through a system of pipes, channels, storage/treatment devices, pumps, and regulators. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps.	http://www.epa.gov/ednrmrl/models/swmm/index.htm

Table 8.2 lists some of the available assessment models and approaches for assessing the biological impacts of channelization. The table also provides a quick description of the model or approach, as well as sources of additional information.

Table 8.2 Assessment Models and Approaches

Model or Assessment Approach	Description	Model Resources
Assessment Models		
AQUATOX	A freshwater ecosystem simulation model designed to predict the fate of various pollutants such as nutrients and organic toxicants and their effects on the ecosystem, including fish, invertebrates, and aquatic plants (including periphyton).	http://epa.gov/waterscience/models/aquatox
Cornell Mixing Zone Expert System (CORMIX)	A water quality modeling and decision support system designed for environmental impact assessment of mixing zones resulting from wastewater discharge from point sources. The system emphasizes the role of boundary interaction to predict plume geometry and dilution in relation to regulatory mixing zone requirements.	http://www.epa.gov/waterscience/models/cormix.html
HEC-HMS, Hydrologic Modeling System	A system designed to simulate the precipitation-runoff processes of dendritic watershed systems. In addition to unit hydrograph and hydrologic routing options, capabilities include a linear quasi-distributed runoff transform (ModClark) for use with gridded precipitation, continuous simulation with either a one-layer or more complex five-layer soil moisture method, and a versatile parameter estimation option.	http://www.hec.usace.army.mil/software/hec-hms/index.html
HEC-RAS, River Analysis System	The HEC-RAS system is used to calculate water surface profiles for both steady and unsteady gradually varied flow. The system can handle a full network of channels, a dendritic system, or a single river reach.	http://www.hec.usace.army.mil/software/hec-ras/hecras-hecras.html http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools/Models/Ras.html

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Model or Assessment Approach	Description	Model Resources
Physical Habitat Simulation Model (PHABSIM)	A set of computer programs designed to predict the microhabitat (depth, velocities, channel indices) conditions in rivers at different flow levels and the relative suitability of those conditions for different life stages of aquatic life. (Serves as the key microhabitat simulation component of IFIM.)	http://www.fort.usgs.gov/Products/Software/PHABSIM
Riverine Community Habitat Assessment and Restoration Concept (RCHARC)	A simulation approach using computer models to compare hydraulic conditions and microhabitats of a reference reach to alternative study reach(es).	Nestler, J., T. Schneider, and D. Latka. 1993. RCHARC: A new method for physical habitat analysis. <i>Engineering Hydrology</i> , 294-99.
RiverWare™	RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes, and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the Army Corps of Engineers sponsor ongoing RiverWare™ research and development.	http://cadswes.colorado.edu/riverware
Salmonid Population Model (SALMOD)	A computer model that simulates the dynamics (spawning, growth, movement, and mortality) of freshwater salmonid populations, both anadromous and resident, under various habitat quality and capacities.	http://www.fort.usgs.gov/Products/Software/SALMOD
Assessment Approaches		
A Procedure to Estimate the Response of Aquatic Systems to Changes in Phosphorus and Nitrogen Inputs	A simple tool to estimate the responsiveness of a waterbody to changes in the loading of phosphorus and nitrogen using a dichotomous key that classifies it according to key characteristics.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/aqusens.pdf

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Model or Assessment Approach	Description	Model Resources
EPA Volunteer Stream Monitoring Methods	A series of methods geared for volunteer monitoring programs offering simple to advanced techniques for monitoring macroinvertebrates, habitat, water quality, and physical conditions.	http://www.epa.gov/owow/monitoring/volunteer/stream
Habitat Evaluation Procedures/Habitat Suitability Index (HEP/HSI)	HEP is an evaluation method that determines the suitability of available habitat for select aquatic and terrestrial wildlife species and measures the impact of proposed land or water use changes on that habitat. HSI is a measure of habitat suitability.	http://policy.fws.gov/870fw1.html http://www.fort.usgs.gov/Products/Software/HEP http://www.fort.usgs.gov/Products/Software/HSI
Index of Biological Integrity (IBI)	An aquatic ecosystem health index using measures of total native fish species composition, indicator species composition, pollutant intolerant and tolerant species composition, and fish condition.	http://www.epa.gov/owow/wetlands/wqual/bio_fact/fact5.html
Indicators of Hydrologic Alteration (IHA)	A method for assessing the degree of hydrologic alteration attributable to human impacts within an ecosystem. The method takes daily stream flow values and calculates indices relating to the five components of flow regime critical for ecological processes: magnitude, frequency, duration, timing, and rate of change of hydrologic conditions.	http://www.nature.org/initiatives/freshwater/conservationtools/art17004.html
Instream Flow Incremental Methodology (IFIM)	A river network analysis that incorporates fish habitat, recreational opportunity, and woody vegetation responses to alternative water management schemes. Information is presented as a time series of flow and habitat at select points within the network.	http://www.fort.usgs.gov/Products/Software/IFIM
Invertebrate Community Index (ICI)	An invertebrate community health index using ten structural and compositional invertebrate community metrics including number of mayfly, caddisfly, and dipteran taxa.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAqLife.html

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Model or Assessment Approach	Description	Model Resources
(Modified) Index of Well-Being (IWB)	The IWB is a fish community health index using measures of fish species abundance and diversity estimates. The <i>modified</i> index of well being factors out 13 pollutant tolerant species of fish from certain calculations to prevent false high readings on polluted streams which have large populations of pollutant tolerant fish.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAgLife.html
Rapid Bioassessment Protocols (RBP)	A set of protocols that offer cost-effective techniques of varying complexity to characterize the biological integrity of streams and rivers using the collection and analysis of biological, physical, and chemical data. It focuses on periphyton, benthic macroinvertebrates, and fish assemblages, and on assessing the quality of the physical habitat.	http://www.epa.gov/owow/monitoring/rbp
Rapid Channel Assessment (RCA)	A reference stream/integrated ranking approach to evaluate the physical condition of a stream channel based on channel geometry, percent channel-bank scour, sediment size distribution and embeddedness, large wood debris, and thalweg profiles.	CWP. 1998. <i>Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds</i> . Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwpp.org .
Rapid Stream Assessment Technique (RSAT)	A reference stream/integrated ranking approach to evaluate steam health based on chemical stability, channel scouring/sediment deposition, physical instream habitat, water quality, riparian habitat, and biological indicators.	CWP. 1998. <i>Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds</i> . Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwpp.org . http://www.stormwatercenter.net
Rosgen's Stream Classification Method	A classification method that uses morphological stream characteristics to organize streams into relatively homogeneous stream types to predict stream behavior and to apply interpretive information.	Reference: Rosgen, D. 1996. <i>Applied River Morphology</i> . Wildland Hydrology, Pagosa Springs, CO. For a copy contact: Wildland Hydrology Books, 1481 Stevens Lake Road, Pagosa Springs, CO 81147.

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Model or Assessment Approach	Description	Model Resources
Stream Network/Stream Segment Temperature Models (SNTMP/SSTEMP)	Developed to help predict the consequences of stream manipulation on water temperatures, these computer models simulate mean daily water temperatures for streams and rivers from data describing the stream's geometry, meteorology, and hydrology. SNTMP is for a stream network with multiple tributaries for multiple time periods. SSTEMP is a scaled down version suitable for single (to a few) reaches and single (to a few) time periods.	http://www.fort.usgs.gov/Products/Software/SNTMP
Stream Visual Assessment Protocol (SVAP)	A simple procedure to evaluate the condition of a stream based on visual characteristics. It also identifies opportunities to enhance biological value and conveys information on how streams function.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/svapfnl.pdf
Systems Impact Assessment Model (SIAM)	An integrated set of models used to aid the evaluation of water management alternatives, it address significant interrelationships among selected physical (temperature, microhabitat), chemical (dissolved oxygen, water temperature), and biological variables (young-of-year Chinook salmon production), and stream flow. Developed for the Klamath River in northern California.	http://www.fort.usgs.gov/Products/Software/SIAM
Time-Series Library (TSLIB)	A set of DOS-based computer programs to create monthly or daily habitat time-series and habitat-duration curves using the habitat-discharge relationship produced by PHABSIM. (Can serve as the hydraulic component of IFIM).	http://www.fort.usgs.gov/Products/Software/TSLIB
TR-20, Computer Program for Project Formulation Hydrology	A physically based watershed scale runoff event model that computes direct runoff and develops hydrographs resulting from any synthetic or natural rainstorm. Developed hydrographs are routed through stream and valley reaches as well as through reservoirs.	http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/WinTR20.html
TR-55, Urban Hydrology for Small Watersheds	Simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs.	http://www.info.usda.gov/CED/ftp/CED/tr55.pdf

Examples of Channel Modification Activities and Associated Models/Practices

Modeling for Impoundments

A low-complexity option for modeling impoundments is to use simple models like the Bathtub model to simulate the waterbody. Compared to more complex multi-dimensional models, which use multiple computational cells to estimate volumetric and contaminant fluxes between the cells, Bathtub-type models typically use a single cell. This single cell, while a simplification of the system, may be appropriate if the system is fully mixed in both the horizontal and vertical dimensions. This approach can also be economically developed using spreadsheets (such as Excel) to calculate the results. However, a Bathtub-type model has limited utility if the water body is stratified or if results are required at more than one location in the system.

Another example of a modeling tool that has the ability to simulate impoundments is CE-QUAL-W2, a two-dimensional hydrodynamic water quality model. CE-QUAL-W2 provides results for either a horizontal or cross-sectional, two-dimensional plane. Because the model assumes a vertically or horizontally-mixed environment, it is best suited for relatively long and narrow water bodies (rivers, lakes, reservoirs, and estuaries) that exhibit longitudinal or vertical water quality stratification. The water quality portion of CE-QUAL-W2 includes the major processes of eutrophication kinetics and a single algal compartment. The bottom sediment compartment stores settled particles, releases nutrients to the water column, and exerts sediment oxygen demand based on user-supplied fluxes; a full sediment diagenesis (i.e., the process of chemical and physical change in deposited sediment during its conversion to rock) model is under development.

The Environmental Fluid Dynamics Code (EFDC) is a general-purpose modeling package for simulating one- or multi-dimensional flow, transport, and bio-geochemical processes in surface water systems including rivers, lakes, estuaries, reservoirs, wetlands, and coastal regions. The EFDC model was originally developed by Hamrick in 1992 at the Virginia Institute of Marine Science for estuarine and coastal applications and is considered public domain software. This model is now EPA-supported as a component of EPA Region 2's PRVI BASINS software system and EPA's TMDL Toolbox,² and has been used extensively to support TMDL development throughout the country. In addition to hydrodynamic, salinity, and temperature transport simulation capabilities, EFDC is capable of simulating cohesive and non-cohesive sediment transport, near field and far field discharge dilution from multiple sources, eutrophication processes, the transport and fate of toxic contaminants in the water and sediment phases, and the transport and fate of various life stages of finfish and shellfish.

Modeling for Estuary Tidal Flow Restrictions

Artificial hydraulic structures have the ability to alter natural flow patterns (hydrodynamic) in an estuary, which may modify erosion patterns, salinity regimes, and the fate and transport of pollutants. Some examples of artificial hydraulic structures include culverts, bridges, tide gates,

² <http://www.epa.gov/athens/wwwqtsc/html/efdc.html>

and weir structures. Installation or removal of these structures may cause a significant change in local hydrodynamics, and tools may be used to estimate the impacts prior to the modification.

The EFDC model, as described above, allows modelers to evaluate the impacts of hydraulic structures, such as culverts, bridges, tide gates, and weirs. Due to the flexibility of EFDC, each of these structures can also be conceptually represented in a variety of ways. For example, the weir equation can be applied to locations in the modeling grid to estimate water surface-dependent flow through one or more grid cells. This enables a modeler to evaluate the effect of placement of structures that modify surface flow patterns (such as a weir). Structures such as piers and impermeable barriers (e.g. jetties, breakwaters) can also be simulated using this code.

Another modeling tool that can address estuary tidal flow restrictions is the Finite Element Surface Water Modeling System (FESWMS) model. This modeling code was developed by the Federal Highway Administration (FHA) and is distributed by the U.S Geological Survey (USGS). FESWMS is a hydrodynamic modeling code that simulates two-dimensional, depth-integrated, steady or unsteady surface-water flows. It supports both super and subcritical flow analysis, and area wetting and drying. FESWMS is also suited for modeling regions involving flow control structures, such as are encountered at the intersection of roadways and waterways. Specifically, the FESWMS model allows the user to include weirs, culverts, drop inlets, and bridge piers into a standard two-dimensional finite element model. FESWMS does not have three-dimensional capabilities.

Modeling for Estuary Flow Regime Alterations

A number of structures or processes can alter the flow regime of a system. Flow contributions to an estuary can be altered by upstream diversions or basin transfers, dams and dam releases, or other channel modifications. For example, when freshwater flows patterns are altered by the presence and operation of a dam, EFDC can be used to model the impact to downstream estuaries. EFDC can provide modelers with a time series representation of flow that is withdrawn from a simulated reservoir/dam system. Coupling the time series flow projections with hydrodynamic analysis of the receiving estuary enables modelers to determine potential impacts of altered flow patterns and to evaluate various spill options for the dam operation. Structures within the estuary that may alter the flow patterns include marinas, piers, jetties, and other similar type structures. Flow regime alterations due to these structures can be simulated using the same modeling tools described in the Flow Restrictions section above. Flow restrictions are the cause of most changes in the flow regime, so the simulation of the causes of restriction using a process-based modeling tool produces the desired flow alterations. Therefore, EFDC and FESWMS can be utilized in the same manner to obtain flow regime results.

Temperature Restoration Practices

Several computer models that predict instream water temperature are currently available. These models vary in the complexity of detail with which site characteristics, including meteorology, hydrology, stream geometry, and riparian vegetation, are described. The U.S. Fish and Wildlife Service developed an instream surface water temperature model (Theurer et al., 1984) to predict mean daily temperature and diurnal fluctuations in surface water temperatures throughout a stream system. The model, Stream Network Temperature Model (SNTEMP), can be applied to any size watershed or river system. This predictive model uses either historical or synthetic

hydrological, meteorological, and stream geometry characteristics to describe the ambient conditions. The purpose of the model is to predict the longitudinal temperature and its temporal variations. The instream surface water temperature model has been used satisfactorily to evaluate the impacts of riparian vegetation, reservoir releases, and stream withdrawal and returns on surface water temperature. In the Upper Colorado River Basin, the model was used to study the impact of temperature on endangered species (Theurer et al., 1982). It also has been used in smaller ungauged watersheds to study the impacts of riparian vegetation on salmonid habitat.³

The Stream Segment Temperature Model (SSTEMP) is a much-scaled down version of the SNTemp model developed by the USGS Biological Resource Division. Unlike the large network model (SNTemp), this program only handles single stream segments for a single time period (e.g., month, week, day) for any given “run.” Initially designed as a training tool, SSTEMP may be used satisfactorily for a variety of simple cases that one might face on a day-to-day basis. It is especially useful to perform sensitivity and uncertainty analysis. The model predicts minimum 24-hour temperatures, mean 24-hour temperatures, and maximum 24-hour stream temperatures for a given day, as well as a variety of intermediate values. The SSTEMP model identifies current stream and/or watershed characteristics that control stream temperatures. The model also quantifies the maximum loading capacity of the stream to meet water quality standards for temperature. This model is important for estimating the effect of changing controls or factors (such as riparian grazing, stream channel alteration, and reduced streamflow) on stream temperature. The model can also be used to help identify possible implementation activities to improve stream temperature by targeting those factors causing impairment to the stream. Good input data and an awareness of the model’s assumptions are critical to obtaining reliable predictions. SSTEMP may be used to evaluate alternative reservoir release proposals, analyze the effects of changing riparian shade or the physical features of a stream, and examine the effects of different withdrawals and returns on instream temperature.⁴

Selecting Appropriate Models

Although a wide range of adequate hydrodynamic and surface water quality models are available, the central issue in selecting appropriate models for evaluating hydromodification projects is the appropriate match of the financial and geographical scale of the proposed project with the cost required to perform a credible technical evaluation of the projected environmental impact. It is highly unlikely, for example, that a proposal for a relatively small stream channel modification project, such as installing culverts in a stream segment, would be expected or required to contain a state-of-the-art hydrodynamic and surface water quality analysis that requires one or more person-years of effort. In such projects, a simplified, desktop approach (e.g., HEC-RAS Model) requiring less time and money would most likely be sufficient (USACE, 2002a). In contrast, substantial technical assessment of the long-term environmental impacts would be expected for channelization proposed as part of construction of a major harbor facility or as part of a system of navigation and flood control locks and dams. The assessment should

³ For more information or to download SNTemp, see the U.S. Geological Survey Web site: <http://www.fort.usgs.gov/Products/Software/SNTemp>.

⁴ More information about the model is available on the U.S. Geological Survey Web site: <http://www.mesc.usgs.gov/products/software/default.asp> (navigate to Stream Network Temperature Model and Stream Segment Temperature Model).

incorporate the use of detailed 2D or 3D hydrodynamic models coupled with sediment transport and surface water quality models.

In general, six criteria can be used to review available models for potential application in a given hydromodification project:

1. Time and resources available for model application
2. Ease of application
3. Availability of documentation
4. Applicability of modeled processes and constituents to project objectives and concerns
5. Hydrodynamic modeling capabilities
6. Demonstrated applicability to size and type of project

The Center for Exposure Assessment Modeling (CEAM),⁵ EPA Environmental Research Laboratory, Athens, Georgia, provides continual support for several hydrodynamic and surface water quality models, such as HSCTM2D, HSPF, PRZM3, and SED3D. Another source of information and technical support is the Waterways Experiment Station, USACE, Vicksburg, Mississippi.⁶ Although a number of available models are in the public domain, costs associated with setting up and operating these models may exceed the project's available resources. For a simple to moderately difficult application, the approximate level of effort varies, but could range from 1 to 12 person-months.

Several factors need to be considered in the application of mathematical models to predict impacts from hydromodification projects including:

- Variations and uncertainties in the accuracy of these models when they are applied to the short- and long-term response of natural systems.
- Availability of relevant information (data collection) to derive the simulations and validate the modeling results.

The cost of a given modeling project depends on a number of factors. Questions need to be asked prior to the start of a modeling project to determine the purpose and future use of the model, and/or its results. For example, the modeler needs to know if the model results are to be used deterministically (the model assumes there is only one possible result that is known for each alternative course or action), or if the model is to be used for a heuristic (involving or serving as an aid to learning, discovery, or problem-solving by experimental and especially trial-and-error methods) scoping exercise to identify data gaps in a system. In a deterministic study, the results are traditionally compared to observed data in an effort regarded as calibration and validation. The model must therefore be rigorous enough to represent the system accurately. The complexity of the system under study is also a consideration that must be made prior to the project. The complexity of the system generally correlates well with the level of complexity of the model required to simulate it. Likewise, the more complex the model is, the more intensive it is to develop and run, and the more costly the modeling project is.

⁵ <http://www.epa.gov/ceampubl>

⁶ <http://www.erc.usace.army.mil>

A number of approaches are available to model a given system, and the discussion above only highlights a few of the modeling tools currently available. The cost to set up a model for a given system varies tremendously, based not only on the modeling code selected, but also on what the modeler decides to simulate. For example, a modeler may aim to obtain flow results for an estuary using a given model. In reality, surface winds in that estuary may or may not be influencing the flow regime. If observed wind data is available from a weather station nearby, the modeler may choose to incorporate these data into the model to better represent that influence. The modeler may also choose not to incorporate these data, or the data may not be available. Although the modeler is utilizing the same modeling code, the decision regarding whether or not to simulate the wind conditions is not only a question regarding the model's purpose, but also what the development of this model will cost.

Modeling tools can range from simple spreadsheet tools using "back of the envelope" type calculations, to complex processed based models that must be run on high performance computing systems. As discussed previously, the tool selected for a given modeling project needs to be chosen with a number of questions in mind. As a result, each system can be modeled in a number of different ways with a number of different modeling codes. Therefore, the range in cost for even a single estuary or impoundment may range tenfold depending on the model's purpose. Typically, the cost of developing a model may range from a few thousand dollars for a simple spreadsheet model, to in excess of one million dollars for a more robust modeling system.

Chapter 9: Dam Removal Requirements, Process, and Techniques

Chapter 2 provided a discussion of specific impacts from dams, water quality above and below the dam, suspended sediment and recharge issues, and biological and habitat impacts. Chapter 4 then provided a discussion of types of dams, Federal Energy Regulatory Commission (FERC) requirements, management measures and practices that can be used to mitigate for some of the effects of dams, and information to consider when contemplating removing a dam. Chapter 9 focuses on what occurs after the decision has been made to remove a dam. This chapter provides a more detailed discussion on some permitting requirements for removing dams, the dam removal process, and sediment removal techniques to consider when removing a dam.

Requirements for Removing Dams

Removing a dam may require evaluations and permits from state, federal, and local authorities. These requirements are typically to ensure that the removal is done in a manner that is safe and minimizes short and long term impacts to the river and floodplain. States and local governments have different requirements. The following federal requirements may apply to dam removal:

- Rivers and Harbors Act Permit
- FERC License Surrender or Non-power License Approval
- National Environmental Policy Act (NEPA) Review
- Federal Consultations (Endangered Species Act Section 7 Consultation, Magnuson-Stevenson Act Consultation, National Historic Preservation Act Compliance)
- State Certifications (Water Quality Certification, Coastal Zone Management Act Certification)

The following state requirements might apply to dam removal:

- Clean Water Act (CWA) Section 404 Dredge and Fill Permit
- Waterway Development Permits
- Dam Safety Permits
- State Environmental Policy Act Review
- Historic Preservation Review
- Resetting the Floodplain
- State Certifications

Demolition and building permits may also be required for dam removal. Individual state and local governments may have additional requirements as well.

Tips for a Successful Permitting Process (American Rivers, 2002b)

Dam removal is relatively new and the permitting process can be difficult. Most state and federal agencies are not yet practiced at moving dam removal through the permitting process. The relevant permitting requirements were designed for more destructive activities, and dam removal does not easily fit into the requirements. Tips to help make the process smoother include:

Schedule Time

- *Expect dam removal projects to take longer than construction efforts.*
- *Schedule more lead-time into the permitting process to avoid delays and frustrations.*

Establish a Relationship with the Permitting Agencies

- *Hold a pre-application meeting with key agency staff once your project is well thought out.*
- *Do not attempt to circumvent the process and stick with the permitting timeline.*
- *Do not provide inconsistent information.*
- *A single point of contact for the group applying for the permit will help avoid confusion and maintain communication.*

Providing Information about the Proposed Project

- *Create clear and simple descriptions and drawings (to scale) of the proposed project.*
- *Be sure to identify complicating conditions, schedules, seasonal constraints, etc.*
- *Provide and discuss alternatives, but make it clear why the chosen approach should be used.*
- *Assume the reviewers know nothing about your project.*

Dam Removal Process

The complexity of the removal process of a dam is specific to each particular case of removal. There are two major components of the removal process: the stakeholders involved in the decision-making process of removing the dam and the actual physical removal of the dam itself. The authorities that govern dams are numerous, yet overlapping. These entities include: USACE, Bureau of Reclamation, FERC, and other federal agencies; interest groups; and state and local governments. There are also various state programs that have been created to keep dams safe and environmentally friendly, as well as to help owners finance dam removal. A study by the Aspen Institute (2002) provides a list of priority issues to consider when dam removal may be a possibility. Among the considerations listed are dam and public safety, economics, environmental concerns, risk, social values and community interests, scientific information, and stakeholder participation. This report suggests that success of dam removal is dependent upon a thorough analysis of these competing factors and input from all interested parties (Aspen Institute, 2002). Often, the dam owner makes the decision to remove a dam, deciding that the costs of continuing operation and maintenance are greater than the cost of removing the dam. However, state dam safety offices can order for a dam to be removed if there are safety concerns; FERC can order removal of dams under their jurisdiction for environmental and safety reasons (American Rivers, n.d.a.).

State governments have authority over the dams in their jurisdiction. Other state and local government agencies dealing with issues such as water quality, water rights, and fish and wildlife protection can also play a role in overseeing dams within their jurisdiction if they so choose

(FOE et al., 1999). Certain states have implemented stringent rules for dams that are and are not regulated by FERC or USACE. For example, the state of Wisconsin has a Dam Safety Inspection Program that requires dams to be inspected every 10 years by the Wisconsin Department of Natural Resources (WDNR) (Doyle et al., 2000). Any dam that fails to meet safety requirements set by WDNR must be repaired or removed. The state of Pennsylvania has implemented a law that was written under the order of the Pennsylvania Fish and Boat Commission that states that any newly constructed or existing dam that requires a state permit for construction or modification must also include provisions for fish passage (Doyle et al., 2000).

Some states have programs that aid dam owners in the process of removing their structures. The Pennsylvania Department of Environmental Protection (DEP) has adopted procedures to make it easier and less expensive for dam owners to remove unsafe, unused, or unwanted dams. In this process, owners of dams on third order or larger streams are contacted and asked if they are interested in removing their dams. If they are, then all the landowners affected by the removal are contacted, and a public meeting is held if interest warrants one. After public comments, an engineering design is created, followed by an environmental assessment, then sediment and erosion control (ESC) plans are established, and finally approval is sought by the USACE. This program was used in the removal of seven dams on Conestoga River and also in the removal of the Williamsburg Station Dam on the Juniata River. This approval process takes between 12 and 18 weeks (FOE et al., 1999). However, the physical decommissioning and removing of a dam can still be a lengthy and diversified process.

Sediment Removal Techniques

Large dams can trap thousands to millions of cubic yards of sediment over time, eliminating the flood control or storage capacity of the dam. Removal or control of sediment behind a dam can represent a large portion of the cost and planning effort of a dam removal project. There are several methods available to project planners and dam owners that target different pollution concerns and budgetary limitations (International Rivers Network, 2003). The options in terms of sediment removal range from complete removal and relocation of all accumulated material from the inundated regions; removing sediment only from the anticipated channel of the river, or allowing the river to erode a new channel through the sediment (Wunderlich et al., 1994).

If the sediment is basically clean and the main concern is turbidity and clogging downstream streambed spawning areas, gradual incremental drawdowns of the reservoir behind the dam allow the sediment to be transported downstream in smaller portions and avoids the release one large, lethal volume of sediment. If contaminated sediment is the main concern, dredging is an option that can be used. While the use of silt curtains can minimize turbidity during dredging, silt curtains do not contain dissolved substances such as metals, which can pose a threat to downstream ecosystems (EMC2, 2001). Another option for contaminated sediments is to stabilize the sediment in place within the stream. This can be accomplished by leaving a portion of the dam in place to hold back an area of sediment that is of concern. The strategic placement of boulders can also contain the sediment from moving downstream.

For more information on issues associated with dam removal, see the Additional Resources section of this document.

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- Wilhelms, S.C. 1988. Reaeration at low-head gated structures; preliminary results. *Water operations technical support*, Volume E-88-1, July 1988. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.

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Zimmerman, M.J., and M. S. Dortch. 1989. Modelling water quality of a reregulated stream below a hydropower dam. *Regulated Rivers: Research and Management* 4:235-247.

Additional Resources

The following are additional resources that may be used to obtain supplementary information for topics presented in this document.

Background on Streams, Restoration, and Hydrology

The following are basic references regarding stream ecology, restoration, and hydrology:

Allan, J.D. 1995. *Stream Ecology—Structure and Function of Running Waters*. Chapman and Hall, New York.

Brookes, A. and F.D. Shields, eds. 1999. *River Channel Restoration: Guiding Principles for Sustainable Projects*. John Wiley and Sons, Chichester, U.K.

Cooke, G.D., E.B. Welch, S.A. Peterson, and P.R. Newroth. 1993. *Restoration and Management of Lakes and Reservoirs*. 2nd ed. Lewis Publishers, Boca Raton, FL.

Fischenich, C. 2000. *Glossary of Stream Restoration Terms*.
<http://el.erdc.usace.army.mil/elpubs/pdf/sr01.pdf>. Accessed October 2004.

Gordon, N.D., T.A. McMahon, and B.L. Finlayson. 1992. *Stream Hydrology: An Introduction for Ecologists*. John Wiley and Sons, Chichester, U.K.

Kondolf, G.M. 1995. Five elements for effective evaluation of stream restoration. *Restoration Ecology* 3(2):133-136.

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Poff, N., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The natural flow regime: A paradigm for river conservation and restoration. *BioScience* 47:769-784.

Ponce, V.M. 1989. *Engineering Hydrology: Principles and Practices*. Prentice-Hall, Englewood Cliffs, New Jersey.

Rosgen, D.L. 1996. *Applied River Morphology*. Wildland Hydrology, Colorado.

USEPA. 1995. *Ecological Restoration: A Tool to Manage Stream Quality*. EPA 841-F-95-007, U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Washington, DC. <http://www.epa.gov/owow/nps/Ecology>.

Detailed Information for Practices to Achieve Management Measures

Additional information about practices, their effectiveness, limitations, and cost estimates are available from a number of sources, including:

Allen, H.H. and J.R. Leech. 1997. *Bioengineering for Streambank Erosion Control: Report 1 Guidelines*. U.S. Army Corps of Engineers, Environmental Impact Research Program, Technical Report EL-97-8. <http://el.erdc.usace.army.mil/elpubs/pdf/trel97-8.pdf>.

American Society of Civil Engineers and the U.S. Environmental Protection Agency (ASCE and USEPA). 2007. *International Stormwater Best Management Practices (BMPs) Database*. <http://www.bmpdatabase.org>.

Center for Watershed Protection (CWP). 2007. *The Stormwater Manager's Resource Center*. <http://www.stormwatercenter.net>.

Federal Interagency Stream Restoration Working Group (FISRWG). 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. http://www.nrcs.usda.gov/technical/stream_restoration.

Fischenich, J. C. and H. Allen. 2000. *Stream Management*. ERDC/EL SR-W-00-1, U.S. Army Engineer Research and Development Center, Vicksburg, MS. <http://el.erdc.usace.army.mil/elpubs/pdf/srw00-1/srw00-1.pdf>. Accessed October 2004.

Knutson, P.L., and M.R. Inskeep. 1982. *Shore Erosion Control with Salt Marsh Vegetation*. Coastal Engineering Technical Aid No. 82-3. U.S. Army Corps of Engineers Coastal Engineering Research Center, Vicksburg, MS.

National Association of Home Builders (NAHB). 1995. *Storm Water Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers*. National Association of Home Builders, Washington, DC. <http://www.nahbrc.org>.

Oregon Association of Conservation Districts. 1999. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. <http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf>.

Urban Drainage and Flood Control District. 1999. *Urban Storm Drainage Criteria Manual: Volume 3—Best Management Practices*. Urban Drainage and Flood Control District, Denver, CO. <http://www.udfcd.org>.

U.S. Army Corps of Engineers (USACE). 2007. *Engineer Research and Development Center (ERDC) Web site*. <http://www.erdc.usace.army.mil>.

U.S. Department of Agriculture, Forest Service (USDA-FS). 2002. *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*. <http://www.fs.fed.us/publications/soil-bio-guide>.

U.S. Environmental Protection Agency (USEPA). 2002. *Development Document for Proposed Effluent Guidelines and Standards for the Construction and Development Category*. EPA-821-R-02-007. <http://www.epa.gov/waterscience/guide/construction/devdoc.htm>.

U.S. Environmental Protection Agency (USEPA). 2007. *National Menu of Stormwater Best Management Practices*. <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm>.

Additional information about hydromodification, soil bioengineering, and restoration is available from the following:

- *Ann Riley, Urban Stream Restoration: A Video Tour of Ecological Restoration Techniques* (<http://www.noltemedia.com/nm/urbanstream>): This video, which can be ordered online, is a documentary tour of six urban stream restoration sites. It provides background information on funding, community involvement, and the history and principles of restoration. The demonstration includes examples of stream restoration in very urbanized areas, re-creating stream shapes and meanders, creek daylighting, soil bioengineering, and ecological flood control projects. Ann Riley, a nationally known hydrologist, stream restoration professional, and executive director of the Waterways Restoration Institute in Berkley, California, leads the tour.
- *California Forest Stewardship Program. Bioengineering to Control Streambank Erosion* (<http://ceres.ca.gov/foreststeward/html/bioengineering.html>): This fact sheet discusses various bioengineering techniques applicable to California streams.
- *Lower American River Corridor River Management Plan* (<http://www.safca.com>): The plan provides information on aquatic habitat management goals, including restoration to improve aquatic habitat impaired by low flows from channel modification of the Lower American River.
- *Natural Resources Conservation Service, Watershed Technology Electronic Catalog* (<http://www.wcc.nrcs.usda.gov/wtec/wtec.html>): This online catalog is a source of technical guidance on a variety of restoration techniques and management practices, to provide direction for watershed managers and restoration practitioners. The site is focused on providing images and conceptual diagrams.
- *North Delta Improvements Project* (<http://ndelta.water.ca.gov/index.html>): The North Delta Improvements Project (NDIP), which is under the California Department of Water Resources, presents unique opportunities for synergy in achieving flood control and ecosystem restoration goals.

- *Ohio Department of Natural Resources. Stream Management Guide Fact Sheets* (http://www.dnr.state.oh.us/water/pubs/fs_st/streamfs.htm): This is a compilation of fact sheets offering technical guidance for streambank and instream practices, general stream management, and stream processes.
- *Sacramento River Riparian Habitat Program* (<http://www.sacramentoriver.ca.gov>): The Sacramento River Riparian Habitat Program is working to ensure that riparian habitat management along the river addresses the dynamics of the riparian ecosystem and the reality of the local agricultural economy.
- Schueler, T. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Metropolitan Washington Council of Governments, Washington, DC.
- *South Delta Improvements Program* (http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm): The purpose of the South Delta Improvements Program (SDIP) is to incrementally maximize diversion capability into Clifton Court Forebay, while providing an adequate water supply for diverters within the South Delta Water Agency and reducing the effects of State Water Project exports on both aquatic resources and direct losses of fish in the South Delta.
- *South Sacramento County Streams Project* (<http://www.spk.usace.army.mil>): South Sacramento County Streams Project provides flood damage reduction to the urban areas of the Morrison Creek and Beach Stone Lake drainage basins in the southern area of Sacramento, as well as around the Sacramento Regional Waste Water Treatment Plant. The project will fund stream restoration in southern Sacramento County.
- *USDA Natural Resources Conservation Service, Stream Visual Assessment Protocol* (<http://www.nrcs.usda.gov/technical/ECS/aquatic/svapfnl.pdf>): This document outlines methods for field conservationists and landowners to evaluate stream ecological conditions.
- *Washington State Department of Transportation, Soil Bioengineering Web site* (<http://www.wsdot.wa.gov/eesc/design/roadside/sb.htm>): This is a comprehensive Web site, with information on cost, specifications for project design, funding, and case studies.
- *WATERSHEDSS: Water, Soil and Hydro-Environmental Decision Support System* (<http://www.water.ncsu.edu/watershedss>): The “Educational Component” of this Web site contains fact sheets with information on a variety of techniques for management practices, including soil bioengineering and structural streambank stabilization.

Resources for Dams

Thornton, K.W., B.L. Kimmel, and F.E. Payne, eds. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley and Sons, Inc., New York, NY.

U.S. Army Corps of Engineers. No date. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

Web sites for dam removal include the following:

- American Rivers' Rivers Unplugged Program:
http://www.americanrivers.org/site/PageServer?pagename=AMR_content_1270
- Association of State Dam Safety Officials: <http://www.damsafety.org>
- Friends of the Earth's River Restoration:
<http://www.foe.org/camps/reg/nw/river/index.html>
- International River Network's River Revival Program: <http://www.irm.org/revival/decom>
- Massachusetts Department of Fisheries, Wildlife, and Environmental Law Enforcement River Restore Program:
<http://www.mass.gov/dfwele/river/programs/riverrestore/riverrestore.htm>
- National Performance of Dams Program Stanford University:
<http://www.stanford.edu/group/strgeo/researchcenters.html>
- New Hampshire Department of Environmental Services:
<http://www.des.state.nh.us/dam.htm>
- Pennsylvania Department of Environmental Protection, Division of Dam Safety, Dam Safety Program:
<http://www.dep.state.pa.us/dep/deputate/watermgt/we/damprogram/Main.htm>
- Pennsylvania Fish & Boat Commission: <http://www.fish.state.pa.us>
- River Recovery—Restoring Rivers through Dam Decommissioning:
<http://www.recovery.bcit.ca/index.html>
- United States Society on Dams: <http://www.ussdams.org>
- Wisconsin Department of Natural Resources:
<http://www.dnr.state.wi.us/org/water/wm/dsfm/dams/removal.html>

Additional information about dam removal is available from the following resources:

- ASCE. 1997. *Guidelines for the Retirement of Hydroelectric Facilities*. American Society of Civil Engineers.
- Bednarek, A.T. 2001. Undamming rivers: A review of the ecological impacts of dam removal. *Environmental Management* 27(6):803-814.
- Bioscience. 2002. Dam removal and river restoration: Linking scientific, socioeconomic, and legal perspectives. Summer (special issue).
- Born, S.M., et al. 1998. Socioeconomic and institutional dimensions of dam removals: The Wisconsin experience. *Environmental Management* 22(3):359-370.

- Hart, D.D. and N.L. Poff. 2002. A special section on dam removal and river restoration. *BioScience* 52:653-655.
- Heinz Center. 2002. *Dam Removal: Science and Decision Making*. Available at: http://www.heinzctr.org/Programs/SOCW/dam_removal.htm.
- International Rivers Network: <http://www.irn.org/pubs/wrr>.
- Niemi, G.J., et al. 1990. Overview of case studies on recovery of aquatic systems from disturbance. *Environmental Management* 14(5):571-587.
- United States Society on Dams Publications: <http://www.ussdams.org/pubs.html>.
- University of Wisconsin-Madison/Extension. 1996. *The Removal of Small Dams: An Institutional Analysis of the Wisconsin Experience*. Extension Report 96-1, May. Department of Urban and Regional Planning.
- Wisconsin Department of Natural Resources Projects:
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/lowerwis/index.htm#baraboo> or
<http://www.dnr.state.wi.us/org/gmu/lowerwis/baraboo.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/milw/index.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/superior/index.htm>;
<http://www.dnr.state.wi.us/org/gmu/sidebar/iem/sheboygan/index.htm>

Noneroding Roadways

The following sources may be used to obtain additional information on noneroding roadways:

- *Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/roads.html>
- *Erosion, Sediment, and Runoff Control for Roads and Highways*
<http://www.epa.gov/owow/nps/education/runoff.html>
- *Gravel Roads: Maintenance and Design Manual*—the purpose of the manual is to provide clear and helpful information for doing a better job of maintaining gravel roads. The manual is designed for the benefit of elected officials, managers, and grader operators who are responsible for designing and maintaining gravel roads.
<http://www.epa.gov/owow/nps/gravelroads>
- *Low-Volume Roads Engineering Best Management Practices Field Guide*
<http://zietlow.com/manual/gk1/web.doc>
- *Massachusetts Unpaved Roads BMP Manual*
http://berkshireplanning.org/4/download/dirt_roads.pdf
- *Planning Considerations for Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/education/planroad.html>
- *Pollution Control Programs for Roads, Highways, and Bridges*
<http://www.epa.gov/owow/nps/education/control.html>
- *Recommended Practices Manual: A Guideline for Maintenance and Service of Unpaved Roads* <http://www.epa.gov/owow/nps/unpavedroads.html>
- The “Road Maintenance Video Set” is a five-part video series developed for USDA Forest Service equipment operators that focuses on environmentally sensitive ways of maintaining low volume roads. http://www.epa.gov/owow/nps/maint_videoset.html

Additional Information

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish*, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C. <http://www.epa.gov/owow/monitoring/rbp/> Accessed July 2007.

International Commission on Large Dams
<http://www.icold-cigb.org>

International Rivers Network
<http://www.irn.org>

U.S. Army Corps of Engineers, Engineer Research and Development Center
<http://www.ercd.usace.army.mil>

U.S. Department of Agriculture, Farm Service Agency
<http://www.fsa.usda.gov/pas>

U.S. Department of Agriculture, Natural Resources Conservation Service
<http://www.nrcs.usda.gov>

U.S. Department of the Interior, Bureau of Reclamation
<http://www.usbr.gov>

U.S. Department of the Interior, National Park Service
<http://www.nps.gov>

U.S. Department of the Interior, U.S. Fish and Wildlife Service
<http://www.fws.gov>

U.S. Department of the Interior, U.S. Geological Survey
<http://www.usgs.gov>

USEPA. 1994. *A State and Local Government Guide to Environmental Program Funding Alternatives*. EPA 841-K-94-001. <http://www.epa.gov/owow/nps/MMGI/funding.html>

USEPA. 1994. *A Tribal Guide to the Section 319(h) Nonpoint Source Grant Program*. EPA 841-S-94-003.

USEPA. 1994. *Section 319 Success Stories: Volume I*. EPA 841-S-94-004.
<http://www.epa.gov/owow/nps/Success319>

USEPA. *Catalog of Federal Funding Sources for Watershed Protection*
<http://cfpub.epa.gov/fedfund>

USEPA. 1997. *Section 319 Success Stories: Volume II—Highlights of State and Tribal Nonpoint Source Programs*. EPA 841-R-97-001.

<http://www.epa.gov/owow/nps/Section319II>

USEPA. 2002. *Section 319 Success Stories: Volume III*.

<http://www.epa.gov/owow/nps/Section319III>

USEPA Clean Lakes Program

<http://www.epa.gov/owow/lakes/cllkspgm.html>

USEPA Environmental Finance Information Network (EFIN)

<http://www.epa.gov/efinpage/efin.htm>

USEPA Nonpoint Source Pollution Control Program Homepage

<http://www.epa.gov/OWOW/NPS>

USEPA Surf Your Watershed

<http://www.epa.gov/surf>

USEPA Watershed Academy

<http://www.epa.gov/owow/watershed/wacademy>

Watershedss, (Water, Soil, and HydroEnvironmental Decision Support System)—North Carolina State University

<http://www.water.ncsu.edu/watershedss>

Appendix A

U.S. Environmental Protection Agency

Contacts

This appendix provides wetlands contacts, nonpoint source regional contacts, and Clean Water State Revolving Fund Contacts.



U.S. Environmental Protection Agency Contacts

EPA is grouped into 10 Regions. For questions about a particular state, contact the appropriate EPA Regional Coordinator listed below.

EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 1: CT, MA, ME, NH, RI, VT http://www.epa.gov/region01/	U.S. EPA-Region 1 Wetlands Protection Unit One Congress Street Boston, MA 02114-2023 http://www.epa.gov/region01/topics/ecosystems/wetlands.html	U.S. EPA-Region 1 Nonpoint Source Coordinator One Congress Street, Boston, MA 02114-2023 http://www.epa.gov/region01/topics/water/npsources.html	U.S. EPA-Region 1 SRF Program Contact One Congress Street Boston, MA 02114-2023 http://www.epa.gov/ne/cwsrf/index.html
Region 2: NJ, NY, PR, VI http://www.epa.gov/Region2	U.S. EPA-Region 2 Water Programs Branch Wetlands Section 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/wetlands/	U.S. EPA-Region 2 Water Programs Branch Nonpoint Source Coordinator 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/npspage.htm	U.S. EPA-Region 2 Water Programs Branch SRF Program Contact 290 Broadway New York, NY 10007-1866 http://www.epa.gov/Region2/water/wpb/staterev.htm
Region 3: DC, DE, MD, PA, VA, WV http://www.epa.gov/region03	U.S. EPA-Region 3 Wetlands Protection Section 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3esd1/hydricsoils/index.htm	U.S. EPA-Region 3 Nonpoint Source Coordinator 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/nps/	U.S. EPA-Region 3 Construction Grants Branch SRF Program Contact 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/srf/index.htm
Region 4: AL, FL, GA, KY, MS, NC, SC, TN http://www.epa.gov/region4/	U.S. EPA-Region 4 Wetlands Section 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/wetlands/	U.S. EPA-Region 4 Nonpoint Source Coordinator 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/nps/	U.S. EPA-Region 4 Surface Water Permits & Facilities SRF Program Contact 61 Forsyth St. Atlanta GA, 30303 http://www.epa.gov/Region4/water/gtas/grantprograms.html
Region 5: IL, IN, MI, MN, OH, WI http://www.epa.gov/region5/	U.S. EPA-Region 5 Watersheds and Wetlands Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_wetlands.htm	U.S. EPA-Region 5 Nonpoint Source Coordinator Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_nps.htm	U.S. EPA-Region 5 SRF Program Contact Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/business/fs-cwsrf.htm

EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 6: AR, LA, NM, OK, TX http://www.epa.gov/region6	U.S. EPA-Region 6 Marine and Wetlands Section 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/index.htm	U.S. EPA-Region 6 Nonpoint Source Coordinator 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/watershd/nonpoint/	U.S. EPA-Region 6 SRF Program Contact 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/Arkansas/6en/xp/enxp2c4.htm
Region 7: IA, KS, MO, NE http://www.epa.gov/region7	U.S. EPA-Region 7 Wetlands Protection Section (ENRV) 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/region7/wetlands/index.htm	U.S. EPA-Region 7 Nonpoint Source Coordinator 901 N. 5th St. Kansas City, KS 66101	U.S. EPA-Region 7 SRF Program Contact 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/Region7/water/srf.htm
Region 8: CO, MT, ND, SD, UT, WY http://www.epa.gov/region8	U.S. EPA-Region 8 Wetlands Program 999 18th Street, Suite 500 Denver, CO 80202-2405 http://www.epa.gov/region8/water/wetlands/wetlands.html	U.S. EPA-Region 8 Nonpoint Source Coordinator 999 18th Street, Suite 300 Denver, CO 80202-2405 http://www.epa.gov/region8/water/nps/contacts.html	U.S. EPA-Region 8 SRF Program Contact 999 18th Street, Suite 300 Denver, CO 80202-2405
Region 9: AZ, CA, HI, NV, Pacific Islands http://www.epa.gov/region9/	U.S. EPA-Region 9 Water Division, Wetlands 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/wetlands/index.html	U.S. EPA-Region 9 Nonpoint Source Coordinator 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/nonpoint/index.html	U.S. EPA-Region 9 Construction Grants Branch SRF Program Contact 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region9/funding/
Region 10: AK, ID, OR, WA http://www.epa.gov/region10/	U.S. EPA-Region 10 Wetlands Section 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/R10/ECOCOMM.NSF/webpage/Wetlands	U.S. EPA-Region 10 Nonpoint Source Coordinator 1200 Sixth Ave. Seattle, WA 98101	U.S. EPA-Region 10 Ecosystems & Communities SRF Program Contact 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/r10/ecocomm.nsf/webpage/Clean+Water+State+Revolving+Fund+in+Region+10
General Program Information	U.S. EPA Wetlands Division (4502F) Mail Code RC-4100T 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/wetlands/	U.S. EPA Nonpoint Source Control Branch (4503-T) Ariel Rios Bldg. 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/nps	U.S. EPA The Clean Water State Revolving Fund Branch (4204M) 1201 Constitution Ave., NW Washington, DC 20004 http://www.epa.gov/owm/cwfinance/cwsrf/index.htm

ATTACHMENT

32

**Managing Runoff to Protect
Natural Streams:
The Latest Developments on
Investigation and Management
of Hydromodification in
California**



Technical Report 475
December 2005



SMC



**Eric D. Stein
Susan Zaleski**

Southern California Coastal Water Research Project

Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California

Proceedings of a Special Technical Workshop
Co-sponsored by:

- *California Stormwater Quality Association (CASQA)*
- *Stormwater Monitoring Coalition (SMC)*
- *University of Southern California Sea Grant (USC Sea Grant)*

Eric D. Stein
Southern California Coastal Water Research Project (SCCWRP)

Susan Zaleski
University of Southern California Sea Grant (USC Sea Grant)

December 30, 2005

Technical Report #475

SMC



EXECUTIVE SUMMARY

Stream channel downcutting, widening, and erosion due to increased surface runoff present the most profound and difficult to manage problems resulting from conversion of natural land surfaces to developed areas. Land use changes that reduce the capacity for infiltration and evapotranspiration of rainfall may result in an increase in the magnitude and frequency of erosive flows and changes in the proportion and timing of sediment delivery downstream. These effects, termed *hydromodification*, can adversely impact the physical structure, biologic condition, and water quality of streams.

This document summarizes the presentations and discussions from a workshop convened to provide an overview of key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The goal of this workshop was to identify key conclusions regarding the mechanisms and causes of hydromodification and to provide managers and decision makers with a list of recommended priorities for future work in terms of both technical and managerial products.

Recent studies indicate that California's intermittent and ephemeral streams are more susceptible to the effects of hydromodification than streams from other parts of the United States (US). Physical degradation of stream channels in the central and eastern US can initially be detected when watershed impervious cover approaches 10%, although biological effects (which may be more difficult to detect) may occur at lower levels. In contrast, initial response of streams in the semi-arid portions of California appears to occur between 3% and 5% impervious cover.

Managing the effects of hydromodification requires attention to changes in runoff volume, magnitude of flows, frequency of erosive events, duration of flows, timing of high flows, magnitude and duration of base flows, and patterns of flow variability. Slope, composition of bed and bank materials, underlying geology, watershed position, and connections between streams and adjacent floodplains are also key considerations in the management of hydromodification effects.

A contemporary toolbox for assessing the effects of hydromodification consists of three technical approaches: continuous simulation modeling, physical process modeling using geomorphic metrics, and risk-based modeling. Independently and in a range of combinations, these approaches are instrumental to understanding and predicting channel responses. In conjunction with these approaches, the following research areas are recommended for enhanced understanding and assessment of hydromodification:

- Establishment of appropriate reference conditions for various stream types
- Establishment of linkage between geomorphic changes and biologic effects
- Development and calibration of linked models that provide long-term simulation of hydrologic, and resultant physical changes in channel morphology

Furthermore, ongoing monitoring programs should be established for reference streams, streams subject to effects of hydromodification, and streams where various hydromodification management strategies have been employed.

Hydromodification is best addressed with a suite of strategies including site design, on-site controls, regional controls, in-stream controls, and restoration of degraded stream systems. To improve the effectiveness of hydromodification management, it is important to identify the most appropriate set of strategies based on the type of channel, setting, stage of channel adjustment, and amount of existing and expected impervious cover in drainage catchments. Management of hydromodification could be improved by integrating it into a multi-objective strategy that addresses hydrology, water quality, flood control, and stream ecology. In addition, streams should be surveyed and classified in order to identify areas with the greatest risk of impact from hydromodification. Output from dynamic modeling can be used to develop easy to use management guides, and standard monitoring protocols and performance criteria need to be developed. These management tools should be geared toward application by land-use planners and regulators at the municipal and state levels. Finally, a hydromodification workgroup should be formed to facilitate communication and exchange of ideas and information on technical and management strategies relevant to hydromodification.

ACKNOWLEDGEMENTS

This document summarizes two days of collaborative, prescient, and enlightening discussion on one of the most daunting challenges facing aquatic resource managers. We would like to thank all workshop presenters and panelist for sharing their insight and expertise to help develop the conclusions and recommendations contained in this document. We would like to especially thank the workshop organizing committee who made this event possible. Finally, we thank the California Association of Stormwater Quality Agencies, the southern California Stormwater Monitoring Coalition, and University of Southern California (USC) Sea Grant for their generous funding and support.

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WORKSHOP OVERVIEW

The process of urbanization has the potential to affect stream courses by altering watershed hydrology. Development and redevelopment can increase impervious surfaces on formerly undeveloped (or less developed) landscapes and reduce the capacity of remaining pervious surfaces to capture and infiltrate rainfall. In addition, in semi-arid regions, development is usually accompanied by significant supplemental landscape irrigation that maintains high soil moisture conditions. Development practices also tend to reduce or eliminate native vegetation, thus reducing evapotranspiration of rainfall. Consequently, as watersheds develop, a larger percentage of rainfall becomes runoff during any given storm; runoff reaches stream channels much more rapidly, resulting in peak discharge rates that are higher than those for an equivalent rainfall prior to development. These changes to the runoff hydrograph have been termed *hydromodification*.

Hydromodification can result in adverse effects to stream habitat and water supply, and stream erosion associated with hydromodification often threatens infrastructure, homes, and businesses. In response to these effects, state and local agencies have developed, or are developing, standards and management approaches to control and/or mitigate the effects of hydromodification on natural and semi-natural stream courses.

On October 2 and 3, 2005, 26 speakers and 175 participants gathered in Ontario, California to discuss the results of recent research inside and outside of California. This technical workshop was convened to provide an overview of the key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The specific objectives of the workshop were:

- Exchange of information on technical and managerial approaches to hydromodification
- Identification of common conclusions regarding a general understanding of hydromodification
- Recommendation of priority needs for future work relevant to technical and managerial products in response to hydromodification issues

The workshop consisted of two evening and one all-day session. The first night, a small group of scientists and managers gathered to discuss key knowledge gaps and technical information needs. The day session was open to all attendees, who interacted with a slate of speakers summarizing technical, regulatory, and management approaches to responding to the effects of hydromodification. The workshop concluded with an evening session in which a small group discussed priority needs for future research and management tool development. The agenda for the workshop is provided in Appendix A.

This document summarizes key conclusions resulting from the presentations and discussions that occurred during the workshop. The document also provides managers and decision makers with a list of recommend priorities for future work in terms of both technical and managerial products related to hydromodification response.

INTRODUCTION TO HYDROMODIFICATION

Hydromodification is defined by the Environmental Protection Agency (EPA) as the “alteration of flow characteristics through a landscape which has the capacity to result in degradation of water resources” (<http://www.epa.gov/owm/mtb/cwns/1996rtc/glossary.htm>). Most often, hydromodification results from changes in land use practices or direct management of surface runoff. Consequences of hydromodification can include stream channel incision, aggradation, desiccation, and/or inundation.

Land use practices over the past several hundred years have resulted in hydromodification of western landscapes ([Haltiner et al. 1996](#), [Leopold 1968](#)). Historically, many small streams were not connected to main river channels, but rather existed as shallow swales and wetland systems connected to larger rivers via subsurface flow. Surface hydrologic connections occurred intermittently following periodic large storm events. Increased surface runoff and channel disturbance, beginning during the cattle-grazing era circa 1700 – 1900, resulted in many of these systems becoming permanently channelized ([Cooke and Reeves 1976](#)). Channel modification through either direct alteration, or as a consequence of changes in patterns of surface runoff, e.g. through increases in impervious cover, continues today.

Hydromodification has typically resulted in channel incision and bank erosion in the upper and middle portions of the watershed, and in deposition, aggradation, and increased channel meandering in the downstream, flatter portions of the watershed. Often, as the main channel has incised, the lowered base level results in the formation of “knickpoints” (abrupt drops in the channel floor) that migrate upstream into the headwater areas. Often, these migrating “knickpoints” result in severe gully formation in lower order streams, i.e. first- through third-order streams, based on the Strahler stream ordering system. These smaller headwater streams are important from a watershed perspective because much of the sediment generation, carbon export, and initial nutrient processing occur in the upper watershed ([Rheinhardt et al. 1999](#)). The vast majority of stream miles in any given watershed exist as small headwater streams ([Beschta and Platts 1986](#)); consequently, impacts to these streams can result in profound cumulative effects to sediment and water movement patterns throughout the watershed. In many areas, the majority of remaining semi-intact streams is in the upper portions of watersheds. Notably, these areas are the most susceptible to land use change and associated effects of hydromodification. When development occurs in headwater areas rather than lower in the watershed, it tends to result in larger increases in peak discharge due to cumulative decreases in the time of concentration of rainfall to runoff ([Beighley and Moglen, 2002](#)).

Small, frequent runoff events, i.e. two-year frequency storms and smaller, demonstrate the most dramatic effects due to increased imperviousness, effects of supplemental irrigation, or other changes in land use practices ([Beighley et al. 2003](#), [Donigian and Love 2005](#), [Hollis 1975](#)). These small events account for the majority of long-term movement of sediment and consequently are the most deterministic of the geomorphic stability of the stream channels ([Wolman and Miller 1960](#)). However, small increases in basin impervious cover can also result in dramatic increases in runoff during 0.5-5 year flow events. For example, an increase of a few percent in impervious cover can increase the magnitude of a 1- or 2-year flood event by 20-fold ([Hollis 1975](#), [Urbonas and Roesner 1992](#)).

Studies from parts of the country with climates more humid than California’s indicate that physical degradation of stream channels can initially be detected when watershed impervious cover approaches 10%, although biological effects, which may be more difficult to detect, may

occur at lower levels (CWP 2003). Recent studies from both northern and southern California indicate that intermittent and ephemeral streams in California are more susceptible to the effects of hydromodification than streams from other regions of the US, with stream degradation being recognized when catchment's impervious cover is as little as 3-5%¹ (Coleman et al. 2005). Furthermore, supplemental landscape irrigation in semi-arid regions, like California, can substantially increase the frequency of erosive flows (AQUA TERRA Consultants 2004). However, because all streams are constantly undergoing change and adjustment, effects of impervious cover should be investigated in terms of changes in the rate of channel response in addition to the absolute magnitude of response.

Managing the effects of hydromodification requires attention to more than just the peak runoff. The work (or energy) that affects physical and biological channel structure results from movement of water and sediment controlled by runoff volume, flow magnitude and duration, frequency of erosive events, timing of high flows, and magnitude and duration of base flows (Konrad and Booth 2005, Montgomery and MacDonald 2002, Paul and Meyer 2001, Roesner and Bledsoe 2003). Changes in patterns of flow variability and increases in the frequency of high flows have been shown to have measurable effects on the community composition of stream biota (Konrad and Booth 2005). Because streams are coupled hydrologic, geomorphic, biologic systems, it is important to understand the various effects of all changes in surface runoff patterns and to develop appropriate management strategies for each potential effect.

As channels incise, they often go through a series of adjustment stages from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 1). This process can occur over years or decades depending on the type of channel and flow regime. Sand-dominated channels may pass through the full sequence of stages in a few decades, whereas channels in more resistant materials, such as clay, may take much longer, in some cases 50–100 years (Roesner and Bledsoe 2003). Therefore, it is important to understand a channel's stage of adjustment, and target management strategies to account for current and expected future evolution of the channel form.

¹ Most studies evaluate the response of stream channels to "total impervious cover". However, a more appropriate assessment would be based on "effective impervious cover", i.e., the amount of impervious cover that is hydrologically connected to the stream channel. Assessment based on effective impervious cover is more likely to result in observed channel response at lower levels of imperviousness.

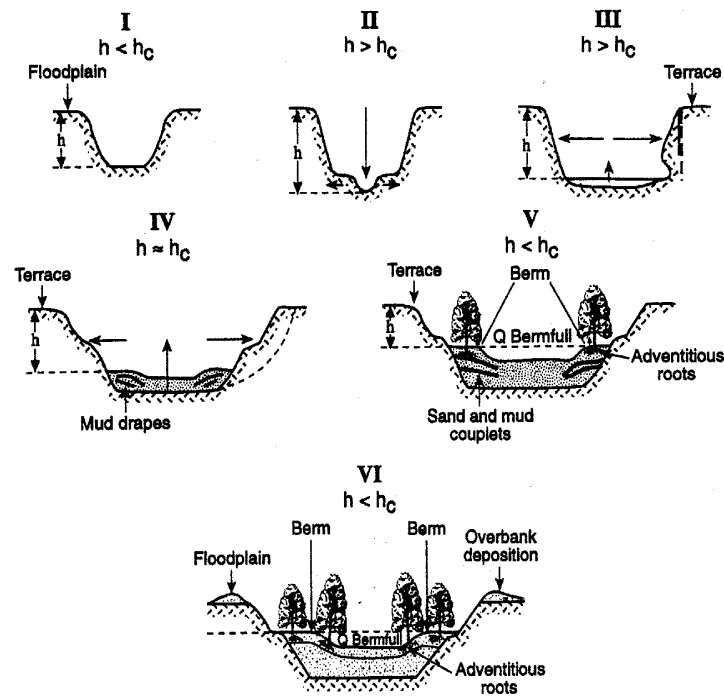


Figure 1: Stages of sand-bed channel adjustment (Schumm et al. 1984).

The pattern and rate of channel response to hydromodification will vary based on channel type and recent disturbance history (Montgomery and MacDonald 2002). Underlying geology, composition of bed and bank materials, slope, watershed position, and floodplain connectivity all affect channel response. Several stream classification systems have been developed over the years, including Shumm (1963), Montgomery and Buffington (1993), Rosgen (1994), and Church (2002). Most of these systems classify streams based on their sensitivity to change and therefore can be used to help assess, prioritize, and customize hydromodification management approaches. For example, Montgomery and Buffington (1993) define the following five channel types, listed from most to least resilient:

- Cascade
- Step pool
- Plane bed
- Pool riffle
- Dune ripple

Classification systems provide a useful starting point for evaluation of channel response to hydromodification; however, the classification systems above were developed in regions more humid and/or mountainous than those typical to California. Given differences in substrate and the extreme range of flows typically observed in arid regions, it is important to develop and regionally calibrate a classification system for dryland channels. Furthermore, the assessment of channel condition and the development of management strategies must be interpreted in terms of both spatial context (i.e. valley slope and position within the watershed) and temporal context (i.e. disturbance history) of the stream (Montgomery and MacDonald 2002). For example,

channel incision may be most dramatic in the middle portions of the watershed; however, these reaches may have stabilized, while the most active erosion and sediment production is occurring in smaller headwater channels. For these reasons, simplistic classification and assessment schemes based on channel appearance must be supported by in-depth geomorphic assessment, historical studies, and thorough understanding of physical and hydrologic processes.

Ultimately, some management strategies may vary based on the channel type, as well as the degree of current and anticipated hydromodification, while others may be more uniformly applied. For example, controlling the magnitude and duration of runoff may be an effective strategy for all stream types, while bioengineered streambank stabilization may only be effective for specific stream types under specific circumstances.

TECHNICAL APPROACHES TO ASSESSING HYDROMODIFICATION

The contemporary toolbox for assessing the effects of hydromodification consists of several technical approaches that may be combined in various ways. Continuous simulation hydrologic models can be used to assess elements in rainfall-runoff cycles and to describe conditions of flow in stream channels. These approaches can be used to assess the way changes in land cover may affect stream flow and to develop management strategies aimed at preventing or reducing such effects. A second, more involved approach, physical process modeling uses hydrologic models to predict changes in stream flow and to predict how these changes may affect the physical structure of the channel itself. This approach may couple hydraulic and sediment transport models, and/or incorporate geomorphic metrics to predict whether or not a channel will remain stable when subjected to the effects of hydromodification. Finally, risk-based assessments are used to account for the uncertainty associated with long-term cumulative effects of altered hydrology on stream channel flow, sediment transport, and stream geomorphology.

Continuous Simulation Modeling

Continuous simulation modeling provides a powerful tool for investigating the way rainfall-runoff patterns change over time with respect to normal climatic cycles and changes in land use practices. Hydrologic models integrate land use, precipitation, soils, topography, and other physical factors to simulate resultant runoff patterns. These models can be used to evaluate the way changes in the extent and distribution of impervious cover may affect flow magnitude, timing, frequency, and duration. In addition, continuous simulation models can be used to assess changes in the shear stress of channel beds and banks over time. Predicted shear stress (τ_{actual}) values can be compared to critical shear stress (τ_{critical}) values associated with the onset of erosion in order to predict conditions that may result in initiation of scour. Recent studies in Ventura County have successfully used $\tau_{\text{actual}}/\tau_{\text{critical}}$ values between 1.2 - 1.5 as a threshold for initiation of channel scour along with an assessment of the frequency of occurrence of these erosive flow events (AQUA TERRA Consultants 2004). When using hydrologic models it is important to simulate runoff and erosion patterns over periods of at least 20-30 years. Short-term or single-event modeling is not sufficient to capture the continuous erosion and aggradation processes that occur during large and small storm events over extended periods of time.

Physical Process Modeling/Geomorphic Metrics

Physical process modeling aims to establish relationships between impervious cover, runoff patterns, and channel response based on field observations of changes in channel form over time. These field observations are used to derive mathematical relationships that can be used to predict channel response to changes in land use practices. Erosion Potential (E_p) is a geomorphic metric that has been used in several recent studies relevant to the effects of increased runoff associated with increases in impervious cover. The E_p represents the ratio of pre- and post-development erosive forces for a given stream type, expressed as:

$$E_p = \frac{W_{\text{post}}}{W_{\text{pre}}}$$

Where: W_{post} = Cumulative erosive energy or work after development
 W_{pre} = Cumulative erosive energy or work before development

Where: Erosive energy is defined as the energy that is above the threshold of erosion for the stream boundary materials, also referred to as excess specific stream power

Values for E_p are derived for both the channel bed and bank, and the boundary that is more susceptible to erosion is used as the basis of setting response thresholds. The E_p of a stream channel should be evaluated based on long-term simulations (e.g. 50 yrs) or based on empirical data collected over extended periods of time. Geomorphic metrics can be used to project changes in channel cross-section area over time in response to increases in impervious cover, as shown in Figure 2, which describes the expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. Channel response thresholds can be inferred according to inflection points on the curve. In this plot, the upper curve is derived from southern California data; the lower curve is derived from data observed in other parts of the US. Expected threshold of response for southern California streams is approximately 4% (Coleman et al. 2005).

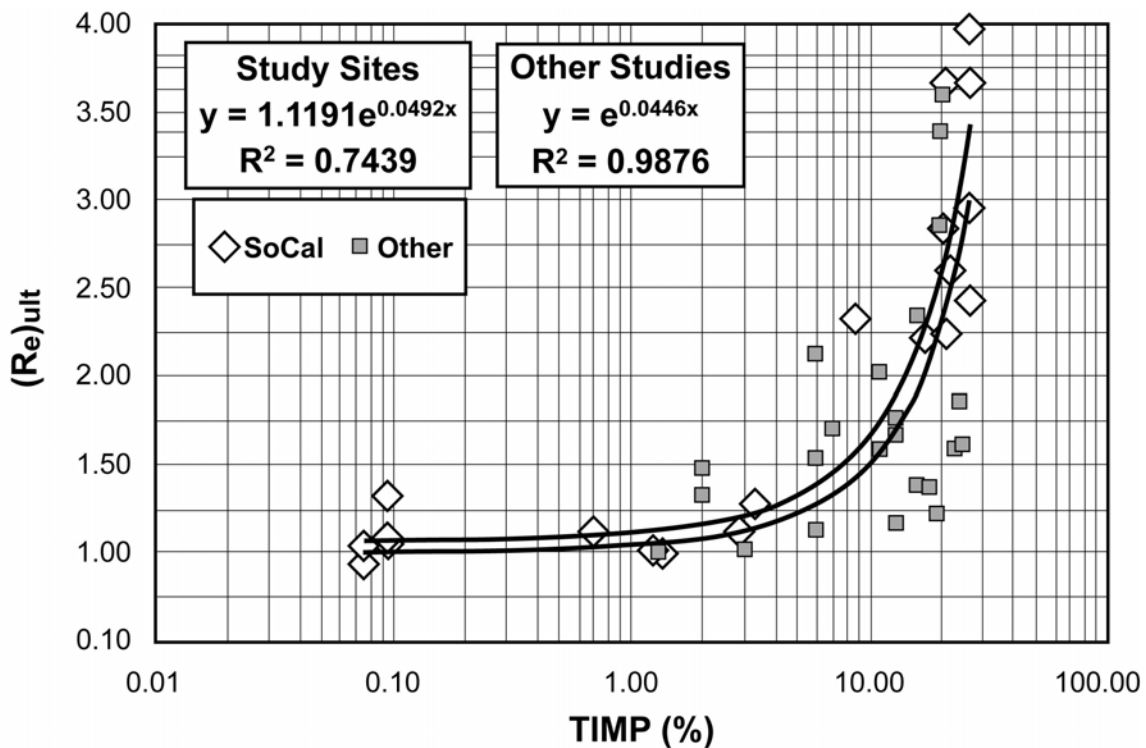


Figure 2: Enlargement curve showing expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. (Re) is the ratio of ultimate channel cross-sectional area to current cross sectional area. Upper curve is derived from data from southern California, lower curve is derived from data from other parts of the US. Expected threshold of response for southern California streams is approximately 4% (from Coleman et al. 2005 and C. MacRae).

It is important to note that curves such as those shown in Figure 2 assume a consistent hydrologic response to increased impervious cover. Long-term hydrologic simulations should be coupled with physical process models to fully explore these relationships and help validate the curves. Furthermore, different channel types respond differently to changes in runoff. Therefore, an enlargement curve, such as the one shown in Figure 2 for a single channel type, should be developed for each major channel type in a region in order to help focus the timing and location of strategic runoff management measures.

Risk-based Modeling

Unlike physical process modeling, which aims to establish response thresholds, risk-based modeling estimates the probability of channel response to increases in erosion potential associated with anticipated changes in runoff as a result of increases in impervious cover. Managers can then determine acceptable risk levels. Typically, risk-based modeling uses the output of continuous simulation or physical process models to generate time-series data relevant to flow and sediment transport. Often this type of modeling includes linear and logistic regressions, in addition to probability networks. These data are then used to estimate the risk of channel response with respect to anticipated changes in runoff volume and sediment. Figure 3 provides an example of the way logistic regression analysis can be used to estimate the likelihood of channel instability based on progressive degrees of erosion potential.

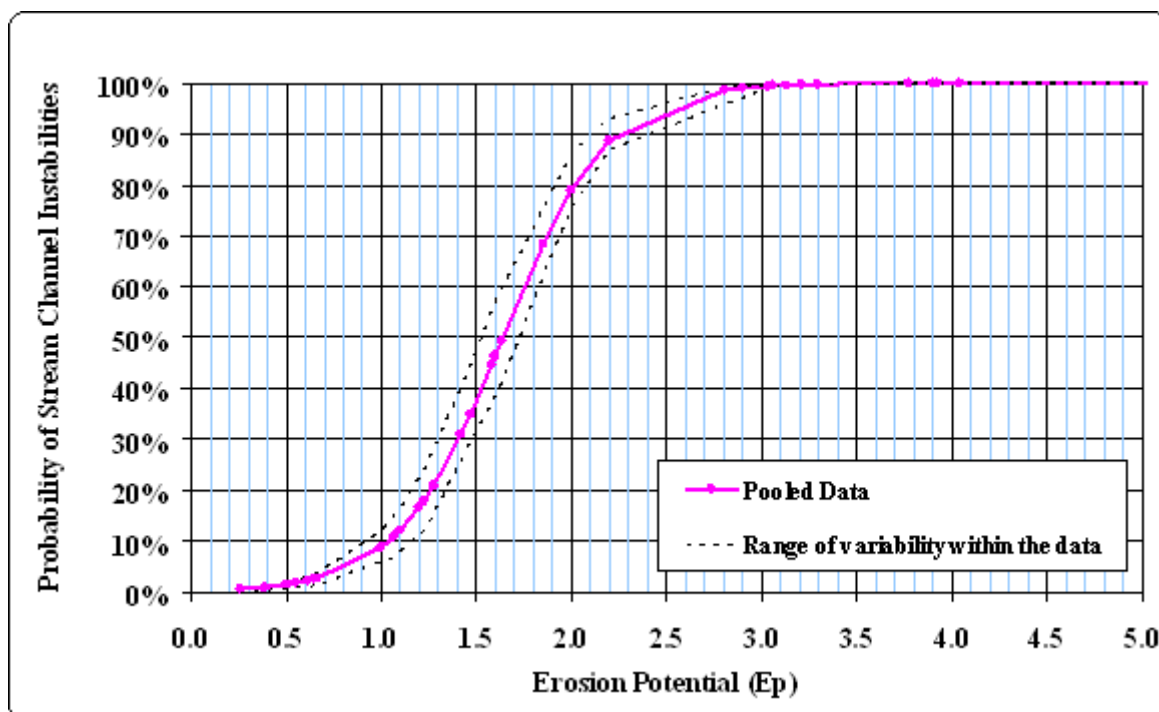


Figure 3: Logistic regression analysis showing the probability of various channel erosion potentials (from B. Bledsoe).

For studies conducted in the San Francisco Bay Area, an E_p value of 1.2 was proposed as an acceptable threshold based on a 15% probability of channel instability². This was typically associated with approximately 3 - 6% impervious cover for channels in sand substrates and 10-12% for channels in clay substrates.

² The negotiated E_p value of 1.0 was adopted for the final Hydromodification Management Plan for Santa Clara Valley and included in a permit amendment for agencies in that area.

PRIORITY TECHNICAL NEEDS AND INFORMATION GAPS

Workshop participants identified five priority areas for additional research and data collection:

- Regional reference conditions for various stream channel types
- Links between geomorphic change and biologic effects
- Dynamic simulation models calibrated for local conditions
- Potential consequences of increased storm water infiltration from urbanized areas
- Ongoing monitoring programs to assess hydromodification impacts and to develop effective management strategies

Regional reference conditions for various stream channel types need to be established

Because most areas in the western US have been subjected to historic grazing or logging, many channels in this region have undergone some degree of change over time. Furthermore, the dynamic nature of this region's fluvial systems means that these streams are constantly undergoing some degree of change. Understanding the historic conditions of stream channels can provide valuable insight; however, historic conditions may not be the most appropriate "reference" in light of current constraints. Rather, reference should be considered a condition where stream channels are in a state of dynamic equilibrium under contemporary natural watershed processes. Once a regional reference condition is defined, data on flow, sediment movement, and geomorphology should be collected on an ongoing basis from representative reference stream reaches. These data will facilitate modeling that more effectively differentiates natural cycles from human-induced changes, especially during long wet or dry cycles where changes may be dramatic but infrequent.

Links between geomorphic change and biologic effects need to be more clearly defined

Hydromodification can cause a variety of physical changes to streams. However, hydrologic changes that are most relevant to biologic communities have not been well defined. For example, it is unclear how changes in base flow duration; peak flow magnitude, duration, and timing; or flow variability affect the structure and function of stream communities. Ultimately, there is a need to develop biologic indices to assess the effects of hydromodification and more effectively direct management strategies.

Dynamic simulation models need to be developed and calibrated for local conditions

Although continuous hydrologic simulation and physical process models have been developed for California streams, these models have not been routinely linked to the assessment of stream channel response to various forms of hydromodification. Hydrologic, physical process, and risk-based models are much more effective when used in combination and appropriately calibrated and validated for California streams. The resultant tool(s) can greatly improve assessments that predict the likelihood of stream channel response to anticipated changes in hydrology associated with changes in land use patterns. Model output may also be useful in the development of objective criteria for establishing land use practices that minimize

hydromodification effects, designing tools for best management practices (BMP) design, and evaluating the performance of management measures.

Potential consequences of increased storm water infiltration from urbanized areas need to be investigated

Infiltration of substantial volumes of storm water runoff from developed land surfaces may introduce unacceptable levels of contaminants into groundwater and/or shallow aquifers. The risk of groundwater contamination and the fate of pollutants introduced into subsurface waters need to be investigated by increased monitoring, development of coupled surface water-groundwater models, and implementation of demonstration projects.

Ongoing monitoring programs to assess hydromodification impacts and develop effective management strategies need to be designed and implemented

First, more extensive flow monitoring needs to be instituted to compensate for the difficulty of calibrating hydrologic models for un-gauged headwater streams. Second, regular geomorphic data needs to be collected from reference streams as well as streams subject to the effects of hydromodification. Routine measurement of channel cross-sections and substrate will greatly improve understanding of channel adjustment processes and allow better discrimination between natural and anthropogenic changes. Third, streams subject to various hydromodification management strategies need to be monitored and documented to support adaptive management and education on emerging techniques and strategies.

REGULATORY AND MANAGEMENT STRATEGIES

Regulatory Approaches to Address Potential Effects of Hydromodification

A variety of regulatory programs and tools exist to help in the regulation of hydromodification effects, including:

- Clean Water Act Section 401 certifications
- Total Maximum Daily Loads (TMDLs)
- Municipal storm water (MS4) permits under Section 402 of the Clean Water Act, and the associated Standard Urban Storm Water Mitigation Program (SUSMP) requirements
- Watershed Urban Runoff Management Plans (WURMPs) and the Watershed Management Initiative (WMI) which encourage municipalities to work cooperatively to manage issues such as hydromodification

In addition, California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) processes can be used to better address hydromodification issues, especially with regard to cumulative effects.

Looking to the future, Regional Water Boards in California are considering development of numeric criteria and objectives for new development and redevelopment projects to offset and/or mitigate hydromodification effects. These objectives may involve requirements for managing flow and/or reducing effective impervious cover as well as strategies to maximize infiltration and reuse of storm water. Some Regional Boards are also considering ways to better coordinate with other regulatory agencies that have authority over hydromodification and stream alteration. Similarly, some State and Regional Water Boards are evaluating their existing regulatory authority over hydromodification and considering ways to strengthen their authority, particularly under section 401 of the Clean Water Act, or as part of Basin Plans.

Management Approaches to Address the Effects of Hydromodification

Hydromodification is best addressed by using a suite of strategies, including site-design, restoration of degraded stream systems, as well as in-stream, on-site control, and regional controls. Managers need to identify the most appropriate set of strategies based on channel type and setting, channel adjustment stage, and amount of existing and anticipated impervious cover in the drainage catchment. However, attempting to have the post-development condition match pre-development runoff magnitude and duration should be an initial consideration for all circumstances.

Management strategies should address not only changes in peak flows but also changes in flow duration and sediment yield. Research to support development of several recent Hydromodification Management Plans indicates that post-project BMPs should ensure no change in runoff volume and cumulative duration of all flows greater than the critical flow for bed or bank mobility. Case studies of three Hydromodification Management Plans/Strategies are provided in Appendix B.

Over the long term, land-use planning, runoff management, as well as channel and floodplain restoration, should be the cornerstones of any hydromodification management strategy. The planning cycle for new development or re-development projects should begin with

hydromodification management assessment as part of the preparation of General and Specific Plans, master drainage plans, and zoning designations. Hydromodification effects must be managed with respect to long-term cycles; therefore, strategies should be adaptive. As conditions change and stream channels evolve, the management approaches must be adjusted. However, it is important to recognize that because changes to watershed hydrology are continual; it is unlikely that any management strategy will be able to achieve full hydrologic mitigation. Over the long term, some lasting physical and biological effects should be expected. Management goals should realistically reflect these anticipated changes.

The Center for Watershed Protection, the National Association of Homebuilders, the Water Environment Research Foundation, the Bay Area Stormwater Management Agencies Association, and others have developed resources that land managers can use to guide improved site design. A list of some of these resources is provided in Appendix C.

PRIORITY MANAGEMENT NEEDS

In response to rapidly developing technical tools, regulations, and management goals, workshop participants identified the following management and information priorities:

1. Establish mapping and classification of streams based on their susceptibility to hydromodification effects. Susceptibility should be evaluated with respect to both stream properties, potential for future increases in impervious cover, and concomitant changes in land use practices, such as supplemental irrigation. Such a system would help managers prioritize streams requiring protection and hydromodification management.
2. Model stream systems in ways that are useful for regulators to make decisions. Once models are validated with local data, output should be:
 - Readily understandable and usable by planners and managers
 - Easily interpreted by regulators for development of consistent requirements and evaluation criteria for the specific region
 - Readily used to develop standardized flow control sizing and design tools for BMPs, where applicable
3. Develop a series of management tools that can be easily used to make recommendations or set requirements relative to hydromodification for new development and re-development projects. These tools would utilize the results of monitoring, modeling, and assessment completed under previous projects to develop a series of plots, nomographs, checklists, or similar managerial tools. It is envisioned that ideally, tools should be developed for three different levels of analysis:
 - Screening tools – Checklists or similar tools that allow planners and managers to evaluate whether or not a project is likely to involve substantial hydromodification issues.
 - Effects tools – For projects that are considered likely to have hydromodification effects based on the results of the screening tool, this tool would serve as a nomograph or series of plots used to evaluate the expected magnitude or intensity of effects associated with a particular project. This tool could also be used to identify projects that should be subjected to subsequent in-depth analysis.
 - Mitigation tools – Once the expected magnitude of effects are determined, this tool would be used to guide recommended mitigation and management measures. This tool could be a series of fact sheets, design criteria, and sizing standards to be used to aid in the development of standards or mitigation requirements.
4. Construct metrics and monitoring protocols to measure the effects of hydromodification on biological communities including riparian habitat.
5. Determine standard monitoring protocols for hydromodification effects and facilitate regional information sharing on project performance.
6. Evaluate the relative costs and benefits of hydromodification management at the site level (e.g. low impact development), and at the regional level (e.g. large retention and infiltration facilities). The economic costs of hydromodification have not been well documented, nor have the economic benefits of managing the physical and biological

effects of hydromodification. Information is also needed on the cost to maintain and manage hydromodification BMPs.

7. Establish recommended short-term measures for use while longer-term solutions, such as low-impact development and alternative site design are evolving.

In addition to management and information priorities, several institutional barriers were identified that may hinder effective management of hydromodification effects. Steps to overcome such barriers include:

- A. Hydromodification management needs to be part of an integrated multi-objective management strategy. Stream planning and management should integrate hydromodification, water quality, flood control, and habitat management strategies as a whole rather than addressing each issue in isolation. Increased coordination between agencies, departments, and stakeholders should be strongly supported. Specifically, agencies that have authority over hydromodification and stream alteration should work toward coordinating regulatory approaches to achieve greater consistency.
- B. Local ordinances need to be revised to facilitate integrating water quality and water quantity management into project design. These ordinances should be flexible enough to allow for variances from standard design requirements, such as curb and gutter and street width parameters, to help reduce impervious cover and increase infiltration.
- C. Hydromodification needs to be addressed in both General and Specific Plans in terms of the location and design of new development. Site-by-site or project-specific approaches tend to be less effective and more costly to implement.
- D. Better linkage between theory and practice need to be established through case studies, academic research, demonstration projects, and long-term BMPs monitoring.
- E. Management of hydromodification needs to be incorporated into regional resource planning efforts, such as the Corps of Engineers Special Area Management Plans (SAMPs) or US Fish and Wildlife Service's Multi-species Habitat Conservation Plans. These regional planning efforts may be effective tools to address cumulative effects of hydromodification at the watershed scale.
- F. A more effective public communication and education strategy needs to be developed. Property owners, local businesses, and community groups need to be better educated about the causes and effects of hydromodification in the context of the watersheds where they live and work. Simple definitions of streams and watersheds should be provided as part of the education strategy. Hydromodification effects need to be linked to health, aesthetic, recreational, and economic endpoints. Citizens should be made aware of simple actions, such as redirecting downspouts, using xeriscaping, and installing planter boxes, that help reduce hydromodification effects.
- G. An ongoing working group should be established to coordinate research, monitoring, technology transfer, education, and management approach evaluation that includes all stakeholder groups.

CONCLUSIONS AND RECOMMENDATIONS

Presentations and discussions during the two-day hydromodification workshop resulted in the following key conclusions and recommendations:

Conclusions

- Physical degradation of stream channels in semi-arid climates of California may be detectable when basin impervious cover is between 3% and 5%. However, biological effects are probably occurring at lower levels.
- Frequent, 0.5-5 years, small runoff events, are most affected by hydromodification.
- Not all streams will respond in the same manner. Certain management strategies need to account for differences in stream type, stage of channel adjustment, current and expected amount of basin impervious cover, and existing or planned BMPs.
- Management strategies should address effects on flow magnitude, duration, and volume.
- Assessment of potential effects and suitability of possible management approaches must account for decadal scale climatic cycles and associated stream channel response.
- Improved site design is likely to be the most effective hydromodification management strategy and should be incorporated at the planning stage of a project.
- It is unlikely that all the effects of hydromodification can be fully mitigated. Changes in impervious cover will result in some changes to the flow patterns and ecology of the affected stream. Realistic management goals should be established to acknowledge long-term effects of increased impervious cover.

Recommendations

- Integrate management of hydromodification into a multi-objective strategy that addresses hydrology, water quality, flood control, stream ecology, and overall watershed and land use planning.
- Institute interim management measures until runoff management becomes a more standard and accepted element of site design, for example, low impact development principles become commonly accepted and implemented in all site designs.
- Establish and implement a stream channel classification system based on expected vulnerability of different streams to hydromodification-induced change.
- Establish appropriate regional reference conditions should for each stream type based on the established classification system.
- Develop and calibrate dynamic simulation models for local streams. Models that combine continuous hydrologic simulations, physical process models, and risk-based modeling will be the most effective.
- Establish ongoing regional hydromodification monitoring programs. These programs should collect flow and geomorphic data from reference streams, unmitigated streams impacted by hydromodification, and streams subject to hydromodification management measures. Helping to separate natural variability from urban-induced changes in stream condition should be a primary goal of such ongoing monitoring programs.
- Develop indices to assess the biological effects of hydromodification.

- Develop protocols for measuring the economic costs and benefits of hydromodification management. Assemble case studies that document these economic costs and benefits.
- Initiate a hydromodification workgroup to facilitate exchange of ideas and information on technical and managerial approaches.
- Increase public education about what can be done at homes, businesses, and in the community to address hydromodification effects.

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APPENDIX A – WORKSHOP AGENDA

HYDROMODIFICATION WORKSHOP AGENDA – October 2-3, 2005

SUNDAY EVENING, INVITED SESSION

- 5:00- 5:15 **Welcome and Introductions** – Eric Stein (Chair), *Southern California Coastal Water Research Project*
- 5:15 – 5:30 **Regulatory Perspective** – John Robertus, *San Diego Regional Water Quality Control Board*
- 5:30 – 6:30 **Status of Science on Evaluating/Studying Hydromodification** (panel discussion)
- Jeff Haltiner, *Philip Williams and Associates*
 - Gary Palhegyi, *Geosytec Consultants*
 - Craig MacCrae, *Aquafor Beech*
 - Brian Bledsoe, *Colorado State University*
 - Derek Booth, *University of Washington*
- 7:30 – 8:30 **Dinner and Open Discussion of Data Gaps and Areas for Future Research**

MONDAY, OPEN SESSION

- 8:30 – 8:40 **Welcome and Opening Remarks** – Chris Crompton (Chair), *SMC*
- 8:40 – 9:15 **Introduction to Hydromodification** – Jeff Haltiner, *Philip Williams and Associates*
- 9:15 – 10:15 **Why is Hydromodification Such a Big Deal?** (mini-panel discussion)
- Policy Perspective – Susan Cloke, *Los Angeles Regional Water Quality Control Board*
 - Regulatory Perspective – John Robertus, *San Diego Regional Water Quality Control Board*
 - Homebuilders Perspective – Marolyn Parson, *National Association of Home Builders*
 - Natural Resource Perspective – Shelley Luce, *Santa Monica Bay Restoration Commission*
- 10:15 – 10:30 **Break** ~
- 10:30 – 12:30 **Hydromodification Research and Studies**
- Risk-Based Channel Stability Analysis for Urbanizing Watersheds – Brian Bledsoe, *Colorado State University*
 - Changes in Streamflow Patterns from Urbanization: A Humid-Region Perspective – Derek Booth, *University of Washington*
 - Modeling Urbanization Impacts and Channel Stability in Ventura County – Tony Donigian, *AQUA TERRA Consultants*
 - Southern California Peak Flow study results and conclusions – Craig MacRae, *Aquafor Beech*
 - Santa Clara Valley HMP Studies- Gary Palhegyi, *GeoSyntec Consultants*

12:30 – 1:30 **Lunch ~**

1:30 – 2:15 **Regulatory Response to Hydromodification**

- Northern California Perspectives – Larry Kolb, *San Francisco Bay Regional Water Quality Control Board*
- Southern California Perspectives – Xavier Swamikannu, *Los Angeles Regional Water Quality Control Board*

2:15 – 3:30 **Implementation of Hydromodification Management Practices**

- Contra Costa County – Dan Cloak, *Dan Cloak Consulting (for Contra Costa County)*
- Santa Clara Valley – Jill Bicknell, *Santa Clara Valley Urban Runoff Program*
- Newhall Land and Farming– Mark Subbotin, *Newhall Land and Farming Company*
- Control of Hydromodification Through Land Planning – Laura Coley-Eisenberg, *Rancho Mission Viejo*

3:30 – 4:30 **Panel Discussion on Implementation Issues** – Facilitated by Matt Yeager, *San Bernardino County Flood Control District*

- Rene DeShazo, *Los Angeles Regional Water Quality Control Board*
- Mark Abramson, *Heal the Bay*
- Marolyn Parson, *National Association of Home Builders*
- Jeff Haltiner, *Philip Williams and Associates*
- Jill Bicknell, *Santa Clara Valley Urban Runoff Program*

MONDAY EVENING, INVITED SESSION

5:30 – 6:00 **Welcome & Summary of Open Session** – Matt Yeager, *San Bernardino County Flood Control District*

6:00 – 7:00 **Dinner ~**

7:00 – 8:00 **Key Needs of Managers for Addressing Hydromodification** (panel discussion)

- Jeff Pratt, *Ventura County Watershed Protection District*
- Bill DePoto, *Los Angeles County Dept. of Public Works*
- Aaron Allen, *US Army Corps of Engineers - Regulatory Branch*
- Laura Coley-Eisenberg, *Rancho Mission Viejo*
- Jon Bishop, *Los Angeles Regional Water Quality Control Board*
- Rebecca Drayse, *TreePeople*

8:00 – 8:30 **General Conclusions and Outline for Workshop Report**

APPENDIX B – CASE STUDIES

Case Study 1 – Contra Costa County

Contra Costa County's Hydromodification Management Plan was developed in response to the National Pollutant Discharge Elimination System (NPDES) permit requirements from the San Francisco Bay Regional Water Quality Control Board. The goal of this Hydro-modification Management Plan (HMP) is to protect urban watersheds from ongoing hydro-modification by applying these requirements to development projects that are greater than or equal to 1 acre. They assist applicants to comply by providing designs and sizing factors. Permit conditions require municipalities to propose a plan to manage increases in flow and volume where increases could:

- Increase erosion
- Generate silt pollution
- Impact beneficial uses

The goal of these plans is to ensure that post-project runoff does not exceed pre-project rates and durations. Contra Costa's plan encourages Low Impact Development Integrated Management Practices (LID IMPs) and allows proposals for stream restoration in lieu of flow control where benefits clearly outweigh potential impacts. The plan includes four options for compliance:

1. Demonstrate project will not increase directly connected impervious area
2. Implement pre-designed hydrograph modification IMPs
3. Use a continuous simulation model to compare post- to pre-project flows
4. Demonstrate increased flows will not accelerate stream erosion

Management approaches are selected according to risk:

- Low risk = channelized systems
- Medium risk = channels in substrates with high bed and bank resistance
- High risk = all other channels

Project proponents need to develop a comprehensive analysis of management options for all high risk channels.

Case Study 2 – Santa Clara Valley

The Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP's) NPDES permit requires that increases in runoff peak flow, volume, and duration shall be managed for all projects involving one or more acres of impervious cover, where increased flow and/or volume can cause increased erosion of creek beds and banks. SCVURPPP's overall approach to creating a HMP was to conduct geomorphic and hydrologic assessments of three representative watersheds in the valley, conduct channel stability analyses to establish thresholds

for hydromodification control, develop design criteria for flow control measures, and provide guidance for best management practice implementation³.

The performance criteria in the HMP state that post-project runoff shall not exceed estimated pre-project rates and/or durations, where the increased storm water discharge rates and/or durations will result in increased potential for erosion. Projects shall not cause an increase in E_p of the receiving stream over the pre-project (existing) condition. Furthermore, the E_p value should not be increased at any point downstream of the project. These requirements can be met with a combination of on-site and off-site control measures.

On-site controls should be designed to match flow-duration curves of post-development conditions to pre-development conditions for all flows between 10% of the 2-year peak flow and the 10-year peak flow. Example sizing of flow-duration basins are shown in Table B-1. Management measures are considered “practicable” if construction cost of treatment plus flow controls is less than or equal to 2% of project cost, excluding land value.

Table B-1: Basin Sizing Case Studies from the Santa Clara Valley Urban Runoff Program Hydromodification Management Plan (SCVURPPP Final HMP Report, 2005).

	Thompson	San Jose	Alameda
Basin Depth	4 feet	2.25 feet	2 feet
Basin Area	30 acres	0.06 acre	0.8 acre
Basin Size % DCIA	5.7% (4% catchment)	3.7% (1.7% catchment)	10% (7% catchment)
Drain Time	3 days (90% of the time)	< 1 day	1 day
Q_{cp} (low flow)	2.4 cfs	0.1 cfs	0.25 cfs
Infiltration Rate (rainfall)	0.2 inch/hour	0.2 inch/hour	0.5 inch/hour
Infiltration Rate (flow)	5.5 cfs	0.012 cfs	--

*cfs = cubic feet per second

This hydromodification management plan lays out on-site and in-stream options. Projects in highly urbanized areas with more than 90 % build out and a large percentage of impervious cover are exempt. Additional information on this program is available at www.SCVURPPP.org.

Case Study 3 – Newhall Land

Newhall Ranch is a specific plan approved for 26,000 homes in the Santa Clara watershed. Runoff from the proposed new development will be addressed by a Natural River Management Plan and a Newhall Ranch Stormwater Plan developed by the land owner.

³ The Final HMP Report (April 2005) is available at http://www.eoainc.com/hmp_final_draft

The Natural River Management Plan is a long-term (20-year) master plan that provides for the construction of various infrastructure improvements to the Santa Clara River and tributaries. The plan maintains 15 miles of the Santa Clara River and its tributaries in a natural state with 75- to 200-foot setbacks from the river that sustains habitat quality and meets requirements for flood control. The plan calls for buried bank stabilization, instead of hardened systems, to meet county flood protection requirements and maintain habitat functions in riparian areas. Trenches have been dug far up from the streambed, filled with a compound called “sand cement” – similar to sandstone, then topped with soil, and replanted with native plant species.

The Newhall Ranch Stormwater Plan is a regional approach to storm water management that incorporates both water quality treatment and hydromodification control. The goals of this plan include:

- Reduction in percentage of impervious cover in the upper watershed using cluster design of development and maximizing open space
- Utilization of BMPs for both water quality and hydromodification source control
- Design of in-stream solutions that protect or enhance habitat.
- Incorporation of the “avoidance, minimization, mitigation” hierarchy in plan development

Case Study 4 – Rancho Mission Viejo

Rancho Mission Viejo, a private landowner, has voluntarily developed a set of land planning principles as part of a comprehensive land-use planning and resource management program for 25,000 acres in Orange County California. These planning principles will serve as self-imposed requirements, intended to minimize the effects of future development on natural streams in planning areas. Using these principles, the landowners are proposing to focus development on ridges, which are underlain by less pervious material, thereby preserving valleys which contain pervious areas that support infiltration important to creek functions.

Planning Principles:

Geomorphology/Terrains

- Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale

Hydrology

- Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types, and ground cover
- Address potential effects of future land use changes on hydrology
- Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks
- Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains

Sediment Sources, Storage, and Transport

- Maintain coarse sediment yields, storage and transport processes

Groundwater Hydrology

- Utilize infiltration properties of sandy terrains for groundwater recharge and to offset potential increases in surface runoff and adverse effects to water quality
- Protect existing groundwater recharge areas supporting slope wetlands and riparian zones and maximize alluvial groundwater recharge to the extent consistent with aquifer capacity and habitat management goals

Water Quality

- Protect water quality using a variety of strategies, with particular emphasis on natural treatment systems, water quality wetlands, swales, and infiltration areas

APPENDIX C – ADDITIONAL RESOURCES

BASMAA’s Start at the Source: Design Guidance Manual for Stormwater Quality Protection, 1999. Prepared by Tom Richman & Associates and CDM. Available from www.basmaa.org.

BASMAA’s Using Site Design Techniques to Meet Development Standards for Stormwater Quality: A Companion Document to Start at the Source, 2003. Prepared by CDM. Available from www.basmaa.org

Better Site Design: A Handbook for Changing Development Rules in Your Community Available for \$35.00 from the Center for Watershed Protection at www.cwp.org, under the “Publications” tab.

Redevelopment Roundtable, Consensus Agreement, Smart Practices for Redevelopment and Infill Projects.

Available for free download from the Center for Watershed Protection at www.cwp.org, under the “Publications” tab; it is listed with the “Better Site Design” publications.

Builders for the Bay Program

Information about this program, which is joint project of the Alliance for the Chesapeake Bay, the Center for Watershed Protection and the National Association of Home Builders, can be found at http://www.cwp.org/builders_for_bay.htm.

The Practice of Low Impact Development

Available for \$5.00 from the U.S. Department of Housing and Urban Development, at <http://www.huduser.org/publications/alpha/alpha.html>. It is also available for \$50.00 from the NAHB Research Center’s bookstore at www.nahbr.org.

National Association of Homebuilders Research Center

“Builder’s Guide to Low Impact Development” and “Municipal Guide to Low Impact Development”. Available for free download from <http://www.toolbase.org/tertiaryT.asp?TrackID=&CategoryID=36&DocumentID=3834>

“Growing Greener: Putting Conservation into Local Codes”. Available for free download from <http://www.dcnr.state.pa.us/growinggreener/growinggreener.htm>.

Low-Impact Development Design Strategies: An Integrated Approach; Low-Impact Development Hydrologic Analysis

Both are available for free download from US Environmental Protection Agency’s website at <http://www.epa.gov/owow/nps/lid/>.

Truckee Meadows Structural Control Design Manual: Guidance on Source and Treatment Controls for Storm Water Quality Management - Kennedy/Jenks Consultants

http://ci.reno.nv.us/gov/pub_works/stormwater/management/controls/pdfs/TOC.pdf

National NEMO (Non Point Education for Municipal Officials) Network - Educational Materials on the link between land use and water quality

<http://nemonet.uconn.edu/>

Physical Effects of Wet Weather Flows on Aquatic Habitats: Present Knowledge and Research Needs , by L.A. Roesner and B.P. Bledsoe – Water Environment Research Foundation, 2003.

<http://www.werf.org>

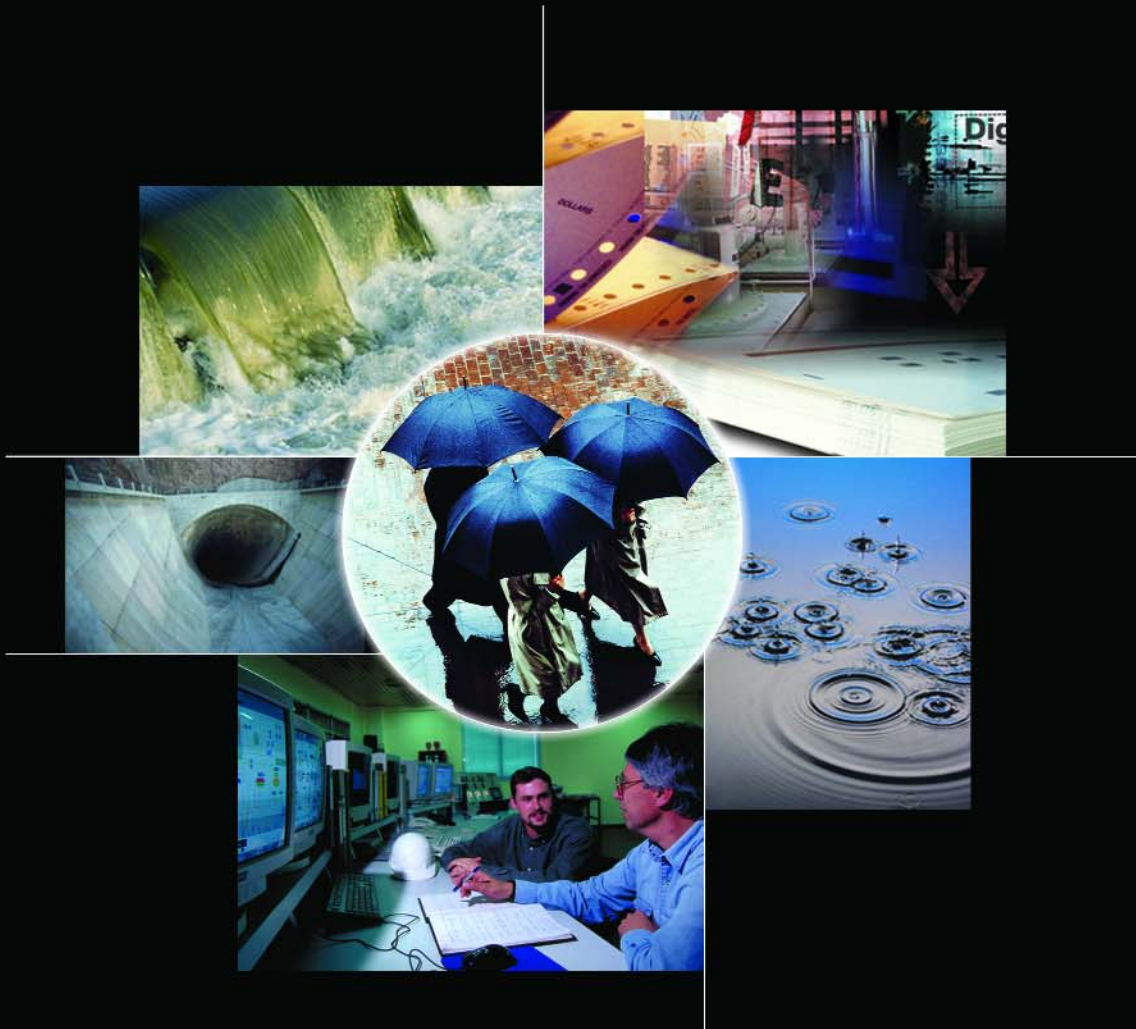
Impacts of Impervious Cover on Aquatic Systems – Center for Watershed Protection, 2003.

<http://www.cwp.org/>

ATTACHMENT

33

2005 STORMWATER UTILITY SURVEY



BLACK & VEATCH
building a **world** of difference™

ENERGY WATER INFORMATION GOVERNMENT

Black & Veatch is pleased to provide the results of its sixth national Stormwater Utility Survey, to help those involved in the stormwater industry stay well-informed across a range of issues. The survey results offer insight into the following topics:

- Organization/Administration
- Planning
- Operations
- Finance/Accounting
- Stormwater User Fees and Billing
- Quality Issues – Best Management Practices
- Public Information/Education
- Major Challenges Recently Faced
- Significant Events Affecting Utilities

These results can be used for numerous purposes, from performance management to financial planning to organization strengthening. At Black & Veatch, we understand the value of knowing what others are doing in the industry. For 90 years, meeting the needs of the utility industry has been at the core of our business. We are happy to discuss any questions you might have regarding this survey.

Profile of Respondents

- Responses were received from 99 utilities in 21 states and one Canadian province. All of these utilities are funded in whole or in part through user fees.
- Approximately 86 percent of the respondents serve a city, rather than a county or region.
- The population served by the respondents ranges from 1,400 (Atlantic Beach, FL) to 3.9 million people (Los Angeles, CA) and the area served varies from 3 to 1,500 square miles. Eighty-one percent indicate they are responsible for stormwater facilities only, while the balance report they are responsible for combined sanitary/stormwater facilities. Approximately 88 percent indicate that they use their own staff to provide a majority of operation and maintenance services.
- For those utilities that base charges on gross property area, equivalent residential units ranged from 1,600 square feet total area to 11,000 square feet, with a mean of 6,964 square feet. For those utilities that base charges on impervious area, impervious areas per equivalent residential unit ranged from 1,500 square feet to 10,000 square feet, with a mean of 2,647 square feet.

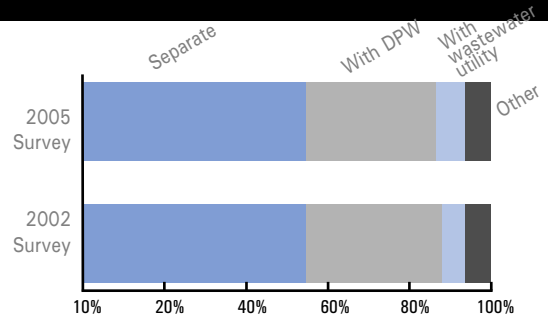
What's New

Feedback from participants prompted us to add a new question to the 2004-2005 version of the Stormwater Utility Survey. In recent years, a number of stormwater treatment systems have become commercially available. Fifty-six percent of respondents have installed at least one of these devices with the most popular being Stormceptor, StormFilter, and CDS Separator. Thirty-six percent have had a favorable experience with these devices in terms of treatment efficiency and ease of maintenance, while 41 percent are still in the evaluation process.

Organization / Administration

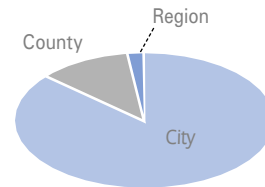
Q How is your operation organized?

- 55% Separate utility
- 32% Combined with Department of Public Works
- 7% Combined with wastewater utility
- 6% Other



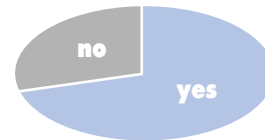
Q What area does your utility serve?

- 86% Within city limits
- 12% County
- 2% Region



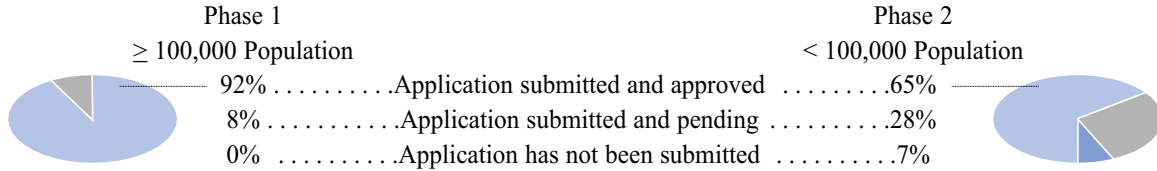
Q Does your state have specific statutes that govern the formation of stormwater utility and user fee financing?

- 71% Yes
- 29% No



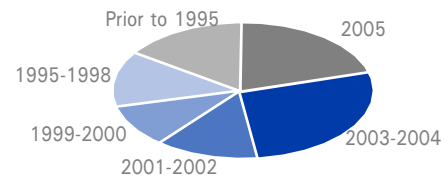
Planning

Q What is the status of your NPDES permit?



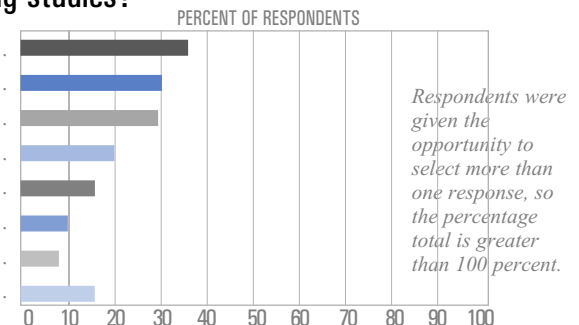
Q When was your most recent stormwater plan or stormwater facilities plan?

- 21% 2005
- 27% 2003–2004
- 13% 2001–2002
- 10% 1999–2000
- 13% 1995–1998
- 16% Prior to 1995



Q What stormwater computer models do you use for planning studies?

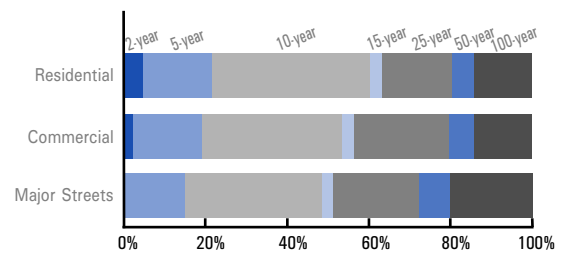
- 36% HEC-2
- 30% XP-SWMM
- 29% HEC-1
- 20% TR-55
- 16% EPA SWMM
- 10% HEC-RAS
- 7% HEC-HMS
- 15% Other



Planning (continued)

Q What return periods do you use to design your major stormwater structures?

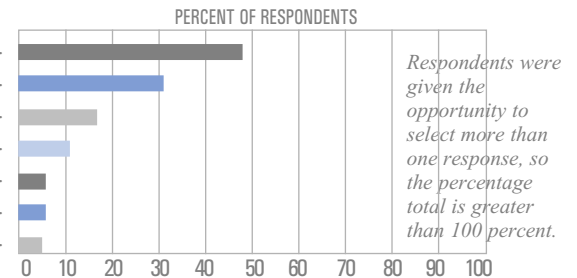
	Residential	Commercial	Major Streets
2-year	3%	1%	0%
5-year	18%	17%	14%
10-year	39%	35%	34%
15-year	3%	3%	3%
25-year	17%	23%	21%
50-year	6%	7%	8%
100-year	14%	14%	20%



Several respondents provided a range of return period. The percentages above represent the smallest return period provided.

Q Which performance indicators do you consider most important in measuring improvement in stormwater management success?

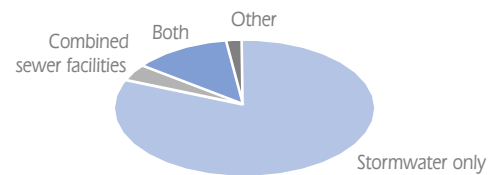
47%	Flood control
31%	Monitoring pollutants
17%	Customer complaints/satisfaction
11%	Cost control measures
6%	Erosion control
6%	Maintenance
5%	Habitat



Operations

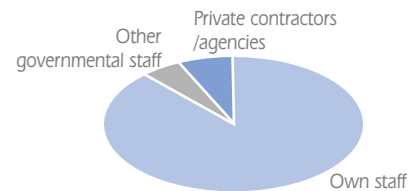
Q What is your utility responsible for?

81%	Stormwater facilities only
4%	Combined sewer (sanitary/stormwater) facilities
13%	Both
2%	Other



Q Who provides the majority of your O&M services?

88%	Own Staff
5%	Other Governmental Staff
7%	Private contractors/agencies

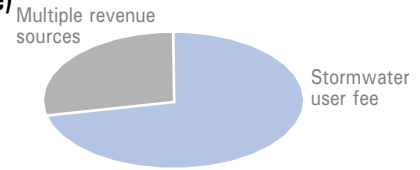


Finance/Accounting

Q What are your major (at least 90 percent of total income) revenue sources?

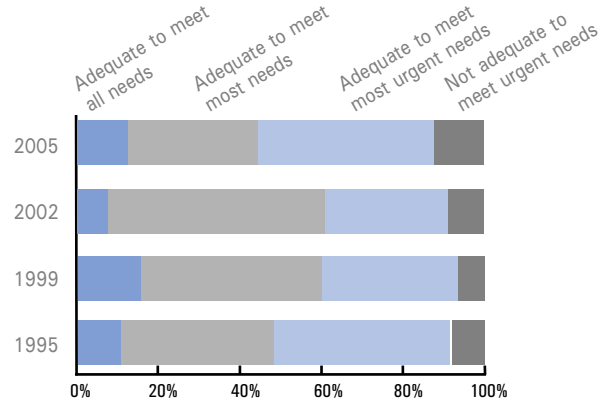
(Excludes 7 utilities that reported no single major source)

- 72% Stormwater user fee
- 28% Multiple revenue sources



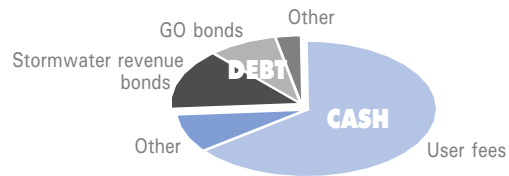
Q How adequate is available funding?

- 13% Adequate to meet all needs
2002 = 8% • 1999 = 16% • 1995 = 11%
- 32% Adequate to meet all needs
2002 = 53% • 1999 = 44% • 1995 = 38%
- 43% Adequate to meet most urgent needs
2002 = 30% • 1999 = 34% • 1995 = 44%
- 12% Not adequate to meet urgent needs
2002 = 9% • 1999 = 6% • 1995 = 7%



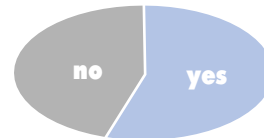
Q How is the majority of capital improvement needs financed?

- 74% Cash financed
 - 65% From user fees
 - 0% From ad valorem taxes
 - 9% Other
- 26% Debt financed
 - 14% Stormwater revenue bonds
 - 9% General obligation bonds
 - 0% Combined bonds
 - 3% Other



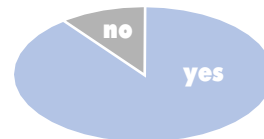
Q Does your accounting system permit cost tracking by operating activity (e.g., inlet cleaning)?

- 55% Yes
- 45% No



Q Does your accounting system identify user fee revenues by customer class (e.g., residential)?

- 89% Yes
- 11% No

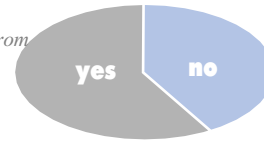


Stormwater User Fees and Billing

Q Were your rates revised in the last 12 months?

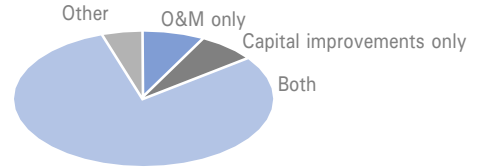
- 41% No
- 59% Yes

Increases ranged from 1% minimum to 117% maximum



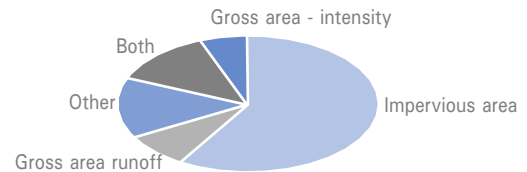
Q What are your user fees designed to pay for?

- 8% Operation and maintenance (O&M) expenses only
- 7% Capital improvements only
- 80% Both O&M expenses and capital improvements
- 5% Other



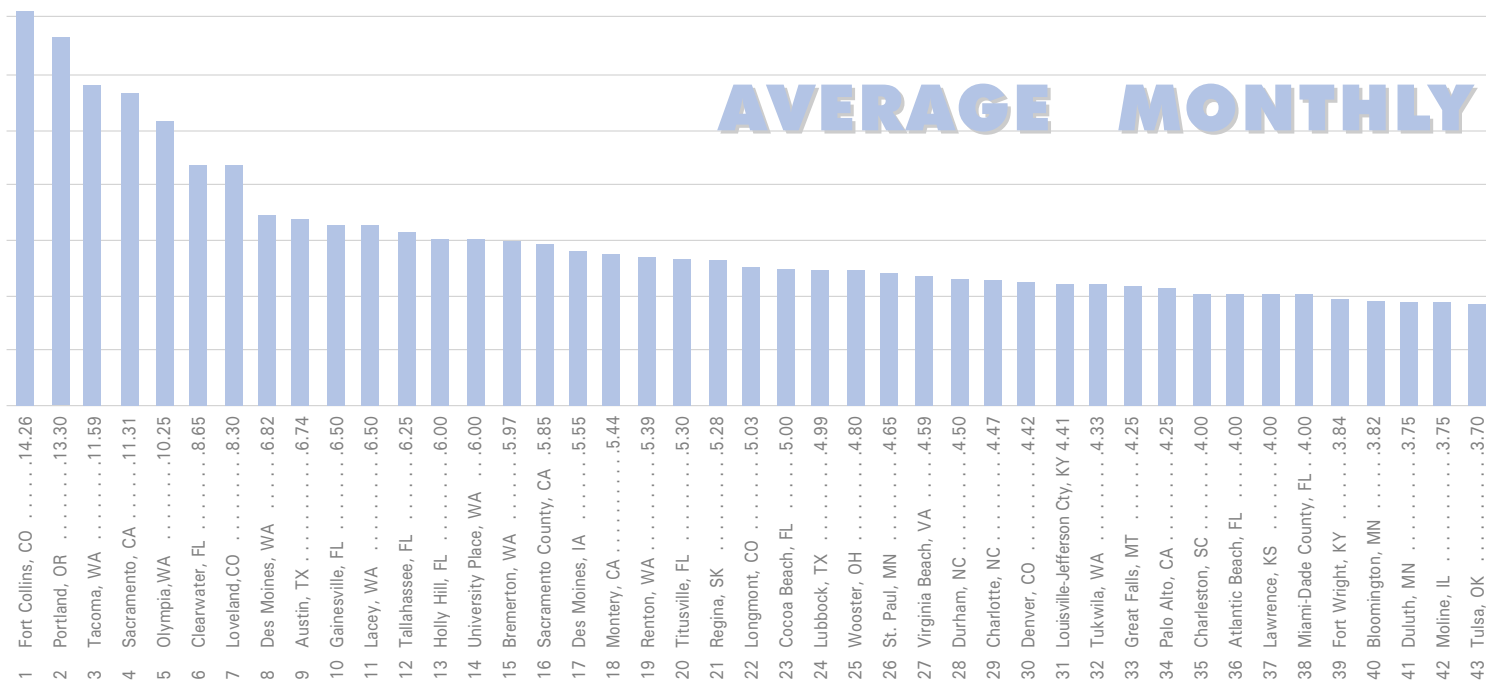
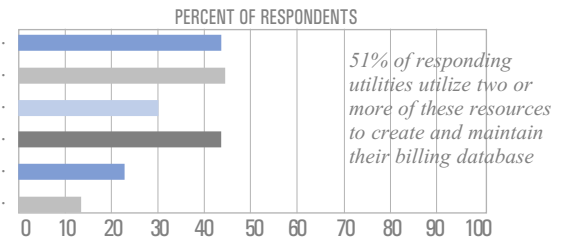
Q What is the basis for your user fees?

- 59% Impervious area
- 8% Gross area with intensity of development factor
- 14% Both impervious and gross areas
- 13% Other (e.g., number of rooms, water use, flat fee)
- 6% Gross area with runoff factor



Q If user fees are area-based, what principal resources were employed to create and maintain the customer database used to compute charges?

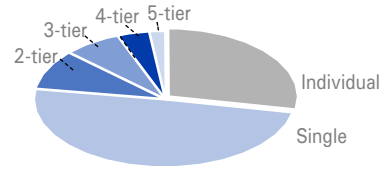
- 42% Property tax assessor records
- 43% Aerial photographs
- 29% On-site property measurement
- 42% Geographic Information System (GIS)
- 22% Planimetric map take-offs
- 13% Other (e.g., building permits, site plans)



Q Are your stormwater charges based on individual or class average characteristics?

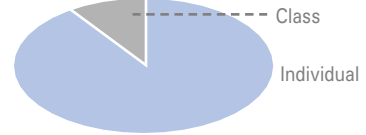
Residential

- 27% Individual parcel
- 73% Class average as:
 - 48% Single tier
 - 9% 2-Tier rate
 - 7% 3-Tier rate
 - 4% 4-Tier rate
 - 2% 5-Tier rate



Non-Residential

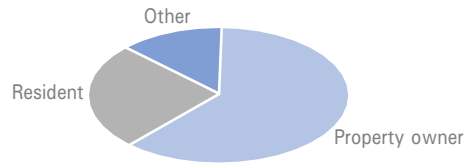
- 90% Individual parcel
- 10% Class average



3% of respondents who answered class average did not provide the number of rate tiers.

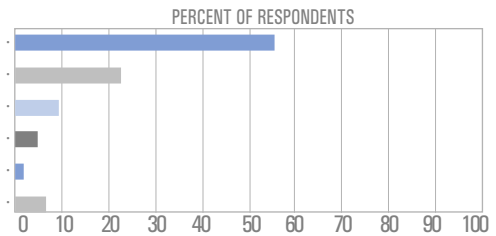
Q Who is responsible for the payment of user fees?

- 62% Property owner
- 25% Resident
- 13% Other (e.g., water or other utility bill recipient)

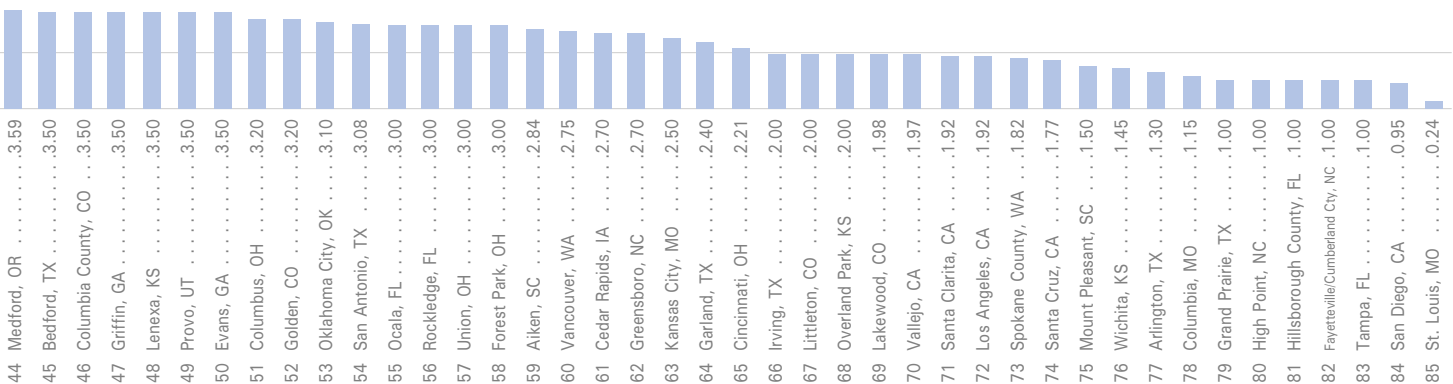


Q How frequently do you bill?

- 56% Monthly
- 22% Annually
- 9% Bi-monthly
- 5% Quarterly
- 2% Semi-annually
- 6% Other



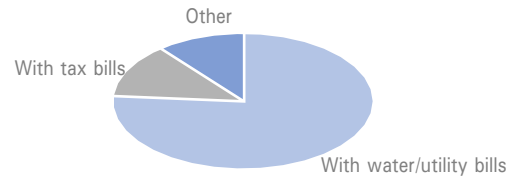
RESIDENTIAL CHARGE



Stormwater User Fees and Billing (continued)

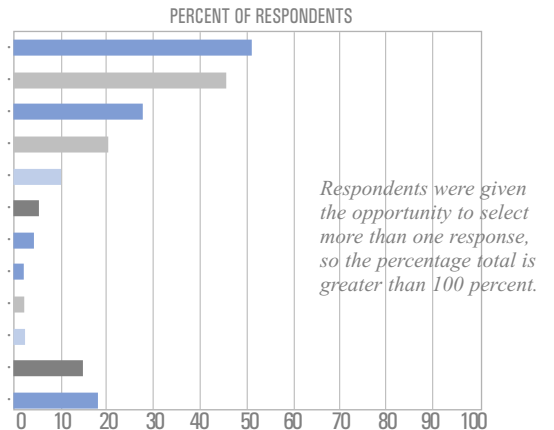
Q How are your user fees billed?

- 76% With water or other utility bills
- 13% With tax bills
- 11% Other



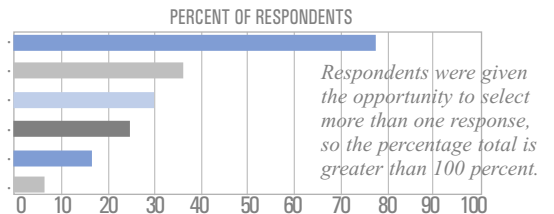
Q What types of properties are exempt from user fees?

- 51% Streets/highways
- 46% Undeveloped land
- 27% Rail rights-of-way
- 20% Public parks
- 10% Government
- 5% School districts
- 4% Churches
- 2% Airports
- 2% Colleges/universities
- 2% Water front
- 14% None
- 17% Other



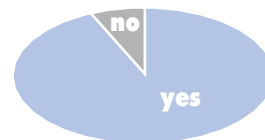
Q What customer classifications are recognized in your stormwater fee structure?

- 77% Residential
- 36% Commercial
- 30% Combined commercial/industrial
- 25% Other
- 17% Industrial
- 7% No designation



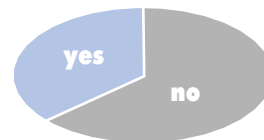
Q Are rates the same for all service areas or watersheds?

- 93% Yes
- 7% No



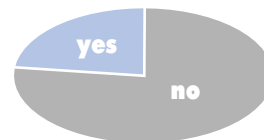
Q Are your user fees for single family dwellings the same as for individual multiple residential units, such as apartments and condominiums?

- 64% No
- 36% Yes



Q Are one-time impact/capital recovery fees applied to new stormwater utility customers or new development?

- 77% No
- 23% Yes

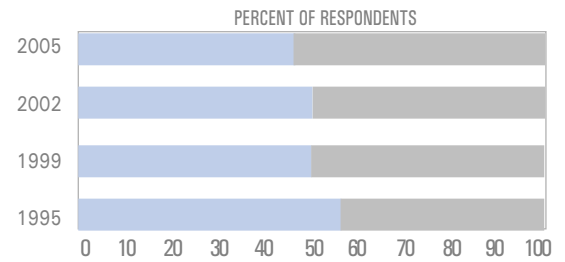


2004–2005 Stormwater Utility Survey

Q Are credits provided for private detention/retention facilities?

46% Yes
 2002 = 53% • 1999 = 50% • 1995 = 57%

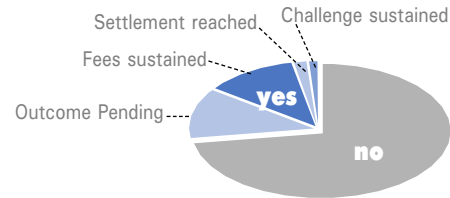
54% No



Q Have your user fees faced a legal challenge?

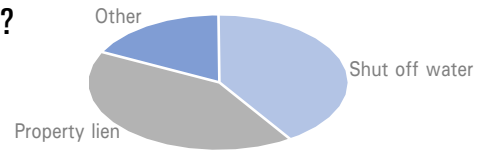
72% No
 28% Yes

12% Outcome pending
 12% Fees sustained
 2% Settlement reached
 1% Challenge sustained (2 later remedied by legislation)



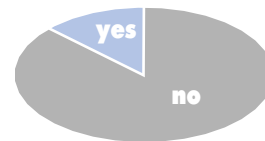
Q On what basis is payment of your user fees enforced?

41% Lien on property
 42% Shut off water
 18% Other



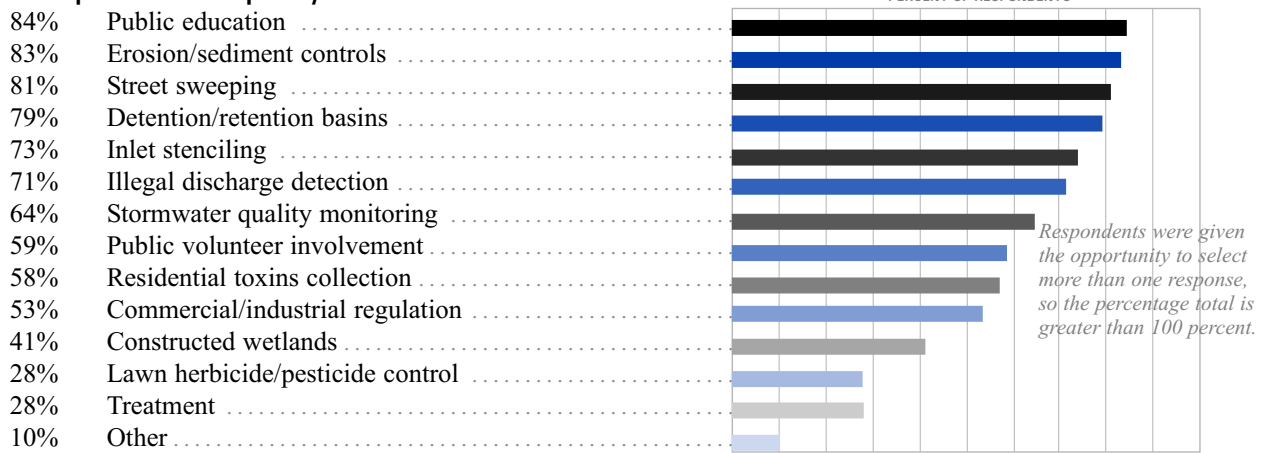
Q Is a significant share of your utility costs attributable to stormwater from outside your service area?

87% No
 13% Yes



Quality Issues – Best Management Practices

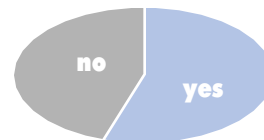
Q Which programs and practices are being used to protect or improve water quality?



Quality Issues Best Management Practice (continued)

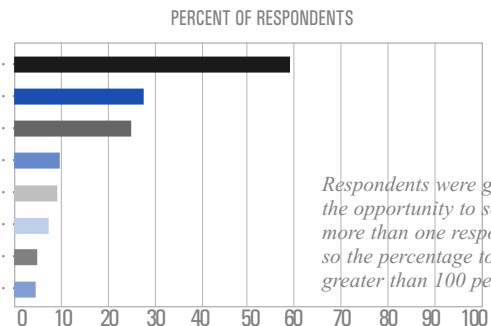
Q Have you installed any stormwater treatment systems in your stormwater conveyance system?

55% Yes
45% No



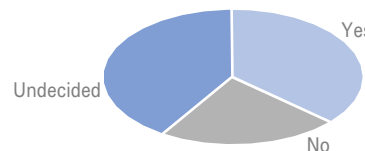
Devices installed:

59% Stormceptor
28% CDS Separator
24% StormFilter
9% Downstream Defend
9% Vortechinics
7% Bay Saver
4% Abtech
4% SunTree Technologies



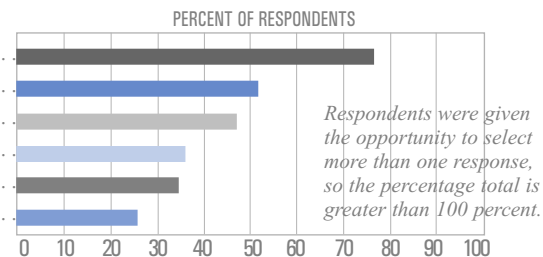
Have these devices met your expectations?

36% Yes
23% No
41% Undecided



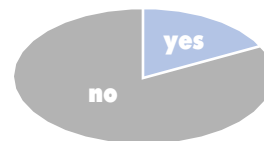
Q What contaminants are your greatest concern?

76% Sediments
51% Nutrients
47% Oil and grease
35% Heavy metals
34% Pesticides
25% Other



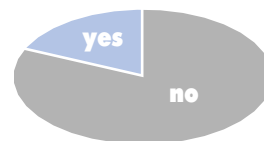
Q Are quality-based user fee credits or other incentives provided to encourage customers to control or reduce stormwater pollution?

18% Yes
82% No



Q Are your user fees specifically designed to provide for the separate recognition and equitable recovery of costs associated with stormwater quality management and quantity(runoff) management, respectively?

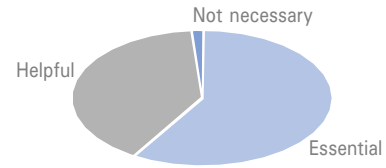
81% No
19% Yes



Public Information/Education

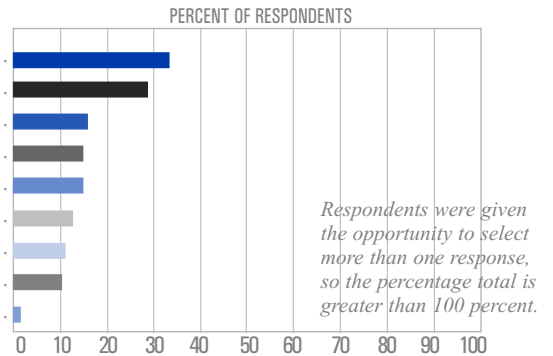
Q How important is an organized public information/education effort to the continuing success of a user fee funded stormwater utility?

- 59% Essential
- 40% Helpful
- 1% Not necessary



Q What means have you found to be the most effective in educating the public about utility services, program needs and financing, and citizen responsibilities?

- 33% Bill inserts
- 29% Public hearings/presentations
- 16% Internet
- 15% Brochures/flyers/newsletters
- 15% Newspaper
- 12% Television
- 11% Public schools
- 10% Speakers bureau
- 1% Direct mail



Major Challenges Recently Faced

Financial, rate, and billing related issues (e.g., financing growth, capital replacements, NPDES and other environmental mandates; rate increases, rate equitability, rate challenges; and billing database updating or conversion to GIS)	19 utilities
Weather and flooding issues (e.g., high amounts of rainfall, standing water, West Nile concerns, localized flooding)	10 utilities
Erosion control (e.g., run-off, erosion problems)	8 utilities
Regulatory and quality control compliance (e.g., illicit discharges, quality monitoring, and difficulties of complying with more stringent state and federal quality mandates related to Endangered Species Act, TMDLs, et al.)	8 utilities
Infrastructure planning issues (e.g., need for integrated flood, quality and environmental planning; remedy of specific infiltration/inflow or local flooding problems; and system-wide flood control master planning)	7 utilities
Jurisdictional issues (e.g., incorporation of added cities into service area and co-permittee coordination)	3 utilities
Public education (e.g., need for increased education regarding new programs or rate increases)	2 utilities

Significant Events Affecting Utilities in Past Two Years

NPDES compliance	21 utilities
CIP related (funding, projects started/completed)	14 utilities
User fee related (increases, lack of increases)	14 utilities
Weather related (heavy rains, storms, drought)	8 utilities
Organization/administration/staffing changes	7 utilities
Public education/awareness	4 utilities
Urban growth/decline in service area	4 utilities
Legal challenges	2 utilities

Some respondents listed the same events as positive, negative, or both (e.g., heavy rains or flooding brought both damage and increased public awareness of needs).

Stormwater Management

From run-off to potential revenue stream, stormwater management is uniquely challenging. It is often not source-specific, not metered or monitored closely within the community, and not tied to customers' daily decisions.

Black & Veatch's Enterprise Management Solutions team assists utilities nationwide in stormwater management issues to help provide stable funding for operations as well as capital projects.

ABOUT ENTERPRISE MANAGEMENT SOLUTIONS

Black & Veatch is pleased to provide this survey as an industry service. For 90 years, meeting the needs of utilities nationwide has been at the core of our business. We understand the value of knowing how others are addressing the industry's complex issues. From organization effectiveness to financial structuring to risk management, it helps to know the industry's trusted business partner. Black & Veatch brings it all together.



BLACK & VEATCH
building a **world** of difference™

ENERGY WATER INFORMATION GOVERNMENT

For custom strategies, proven processes and high-value results, contact:
Anna White
Black & Veatch • 11401 Lamar Avenue • Overland Park, KS 66211 USA
Tel: 913-458-4322
Stormwater@bv.com

Black & Veatch Corporation is a leading global engineering, consulting and construction company specializing in infrastructure development in the fields of energy, water and information.
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ATTACHMENT

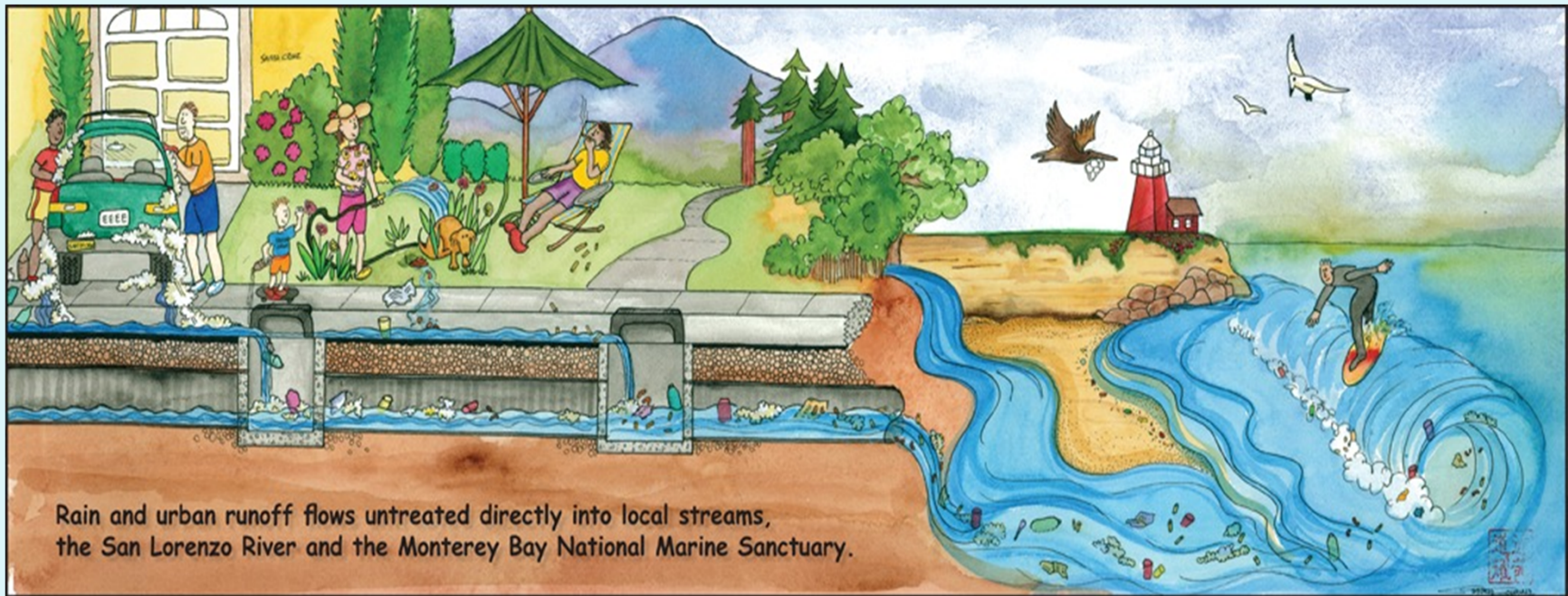
34

City Storm Water Program and Measure E: Clean River, Beaches and Ocean Fund

FY 2015 Highlights

Dedicated funding for programs
to prevent pollution from reaching our waterways
and beaches

Urban Runoff



Rain and urban runoff flows untreated directly into local streams, the San Lorenzo River and Monterey Bay

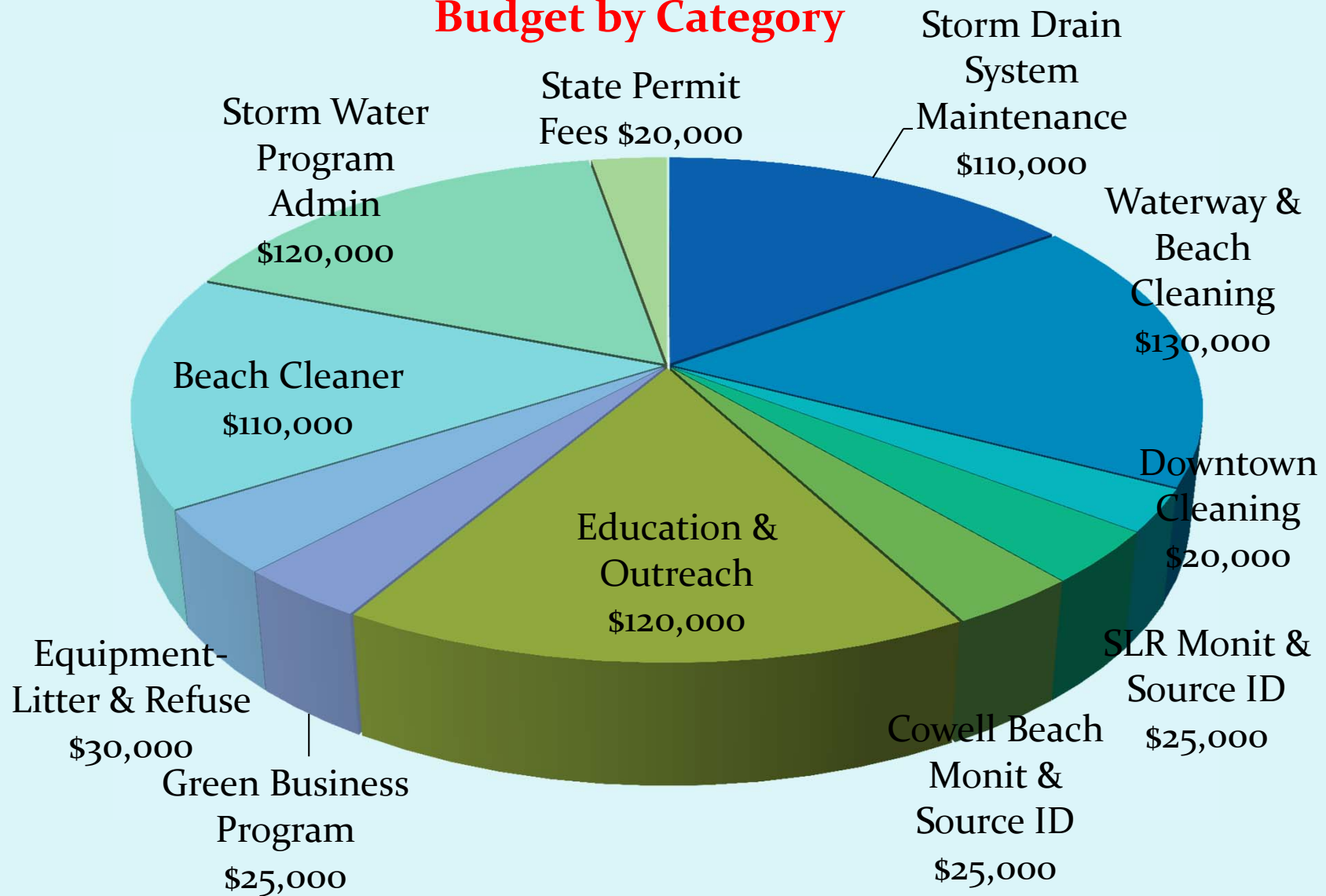
FY 2015 Expenses

- Storm Drain System Maintenance: \$110,000
- Waterway & Beach Cleaning: \$130,000
- Downtown Cleaning: \$20,000
- San Lorenzo River Monitoring & Source ID: \$25,000
- Cowell Beach Monitoring & Source ID: \$25,000
- Education & Outreach: \$120,000
- Green Business Program: \$25,000
- Equipment: Litter & Refuse: \$30,000
- Beach Cleaner: \$110,000*
- Storm Water Program Staff: \$120,000
- State Permit Fees=\$20,000

Revenue: \$630,000 Expenses: \$740,000

FY 2015 Expenses

Budget by Category



Municipal Operations

Focus on cleaning:

To keep debris & pollutants from flowing into the San Lorenzo River and Monterey Bay

- Storm drain pipelines
- Pump Stations
- River Toe Ditches
- Street Catch basins



Municipal Operations

City Crews clean:

- Storm drain pipelines-9 miles
- River pump stations-5 vaults



Municipal Operations

Storm Drain System Inspection & Cleaning:

- Extensive catch basin inspection & cleaning program. All downtown catch basins plus outlying areas inspected & cleaned.
 - Labor costs
 - Vactor Operation
 - Debris Disposal
 - Televising storm drain lines



Cost: \$110,000

Waterway, River Levee & Beach Cleaning

Ongoing Maintenance Efforts:

- San Lorenzo River
 - Parks Temp Staff-\$70,000
 - Contracted cleanups-\$25,000
 - Subtotal: \$95,000
- Cowell & Main Beaches
 - Wharf Temp Staff \$35,000

Cost: \$130,000



Beach Cleaning

Beach Cleaning Machine for Cowell & Main Beaches



Cherrington Beach Cleaner
Cost: \$110,000

Waterway, River Levee & Beach Cleaning

Parks Rangers Temp Staff-cleanups & restoration efforts



Cost=\$70,000

Municipal Operations

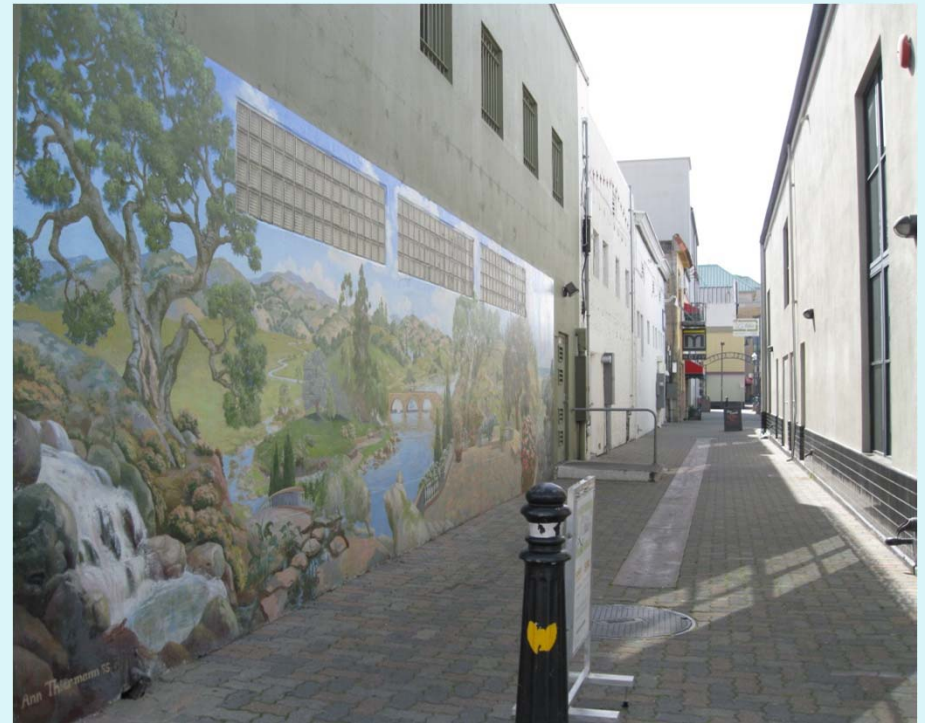
Downtown Cleaning: Hand Sweeping-Hope Services



Cost=\$20,000

Municipal Operations

Downtown Cleaning: Alleyways



Cleaned by contractors

River Levee & Beach Volunteer Cleanups

Save Our Shores:

- San Lorenzo River-Adopt a Levee cleanups
- San Lorenzo River-4 seasonal cleanups
- Annual Coastal Cleanup Day-beach & river cleanups
- July 4th & 5-beach outreach & cleanups
- Disposal of debris

Cost=\$25,000



Education & Outreach Program

School Programs:

- O'Neil Sea Odyssey-Field trip & class 4-5th grades
- Save The Whales-K-12th Grade class presentations
- Save Our Shores-Middle & High School assemblies and classes
- ZunZun-Musical Assemblies K-6th grades



Cost=\$35,000

Education & Outreach Program

Volunteer Monitoring & Stewardship:

- CWC Snapshot Day
- CWC San Lorenzo River Alliance



Cost=\$15,000



Education & Outreach Program

Residential Outreach:

- Arana Gulch Watershed Coordinator
- EA-Our Water Our World: pesticides & herbicides
- EA-Green Gardner Program
- RCD-Low Impact Development
- SW agencies-Region-wide TV ads

Cost=\$15,000



Education & Outreach Program

Business Outreach & Recognition:

- City Clean Ocean Business Program
- Monterey Bay Green Business Program
- Green Gardner/
Landscaping Program

Cost=\$30,000



Education & Outreach Program

Litter & Illegal Dumping:

Catch Basin Labeling (SOS)



Cost=\$10,000



Cigarette Butt
“Bait Tank”
containers

San Lorenzo River Pollution Prevention

Litter & Illegal Dumping

- Trash/Recycling and Cigarette Butt containers on SLR levee & other areas



Cost=\$15,000

SLR Watershed Monitoring

State Total Maximum Daily Load Limits: San Lorenzo River

- **TMDL: Bacteria and Sediment**
- State requires monitoring, remedial measures & reports
- Monitoring of SLR, Branciforte & Carbonera Creeks by City Lab & Env Compliance Program
- Results indicate birds and sediment are primary sources of elevated bacteria levels in SLR
- City is an active partner in the SLRA led by Coastal Watershed Council (staff time, funding, specialized lab work, data sharing)



Cost= \$25,000 (Lab)

Cowell Beach

- **City participates in Cowell Beach Working Group**
- **City & County both monitor Cowell Beach**
- **Results show low bacteria levels during winter months**
- **Sewer source unlikely since levels not high year round**



In 2014, City added caffeine test as indicator of sewage (none found so far)
In 2015, City conducted a preliminary bacteria gradient study

New State Requirements

Outfall Inventory and Sampling

- Staff checked 236 storm drain outfalls
- 26 outfalls had flows during summer and were sampled
- Results showed 1 suspect outfall which led staff to identify a cracked storm drain



New State Requirements

Construction: Erosion Control

- Grading ordinance revised June 2014: Projects need to submit erosion & sediment control plans
- Increased PW and Building staff oversight of construction projects



New State Requirements

Development: Low-Impact Design

- New (2014) requirements to collect & infiltrate (sink) storm runoff on property
- Applies to private developments, retrofits, and City projects
- *Examples of LID techniques:*

Pervious Pavement



Bio-retention



Drainage Swale



Rain Barrel



Low-Impact Development on Recent Private Projects

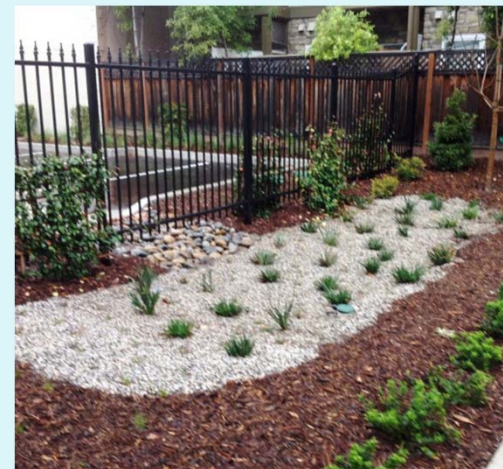
Madrone Street (Sports Authority)



Frederick Street (Multi-family)



West Cliff Drive (Multi-family)



Low-Impact Development on Recent City Projects

Kaiser Permanente Arena



Wharf Roundabout (not vegetated yet)



Arana Gulch Multi-Use Trail



Tannery Arts New Parking Lot



Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9

- Goal to reduce runoff & pollutant loads to River
- LID to sink rain runoff and divert pollutants into soil



Construction completed August 2015

Grants & Projects

State Prop 84 Grant: Low Impact Development Parking Lot #9

- Sloping & curb cuts to bio-swales redirect 75% of lot runoff



Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants



Vegetated bio-swale with curb cuts

Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants



Vegetated bio-swale with curb cuts

Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9

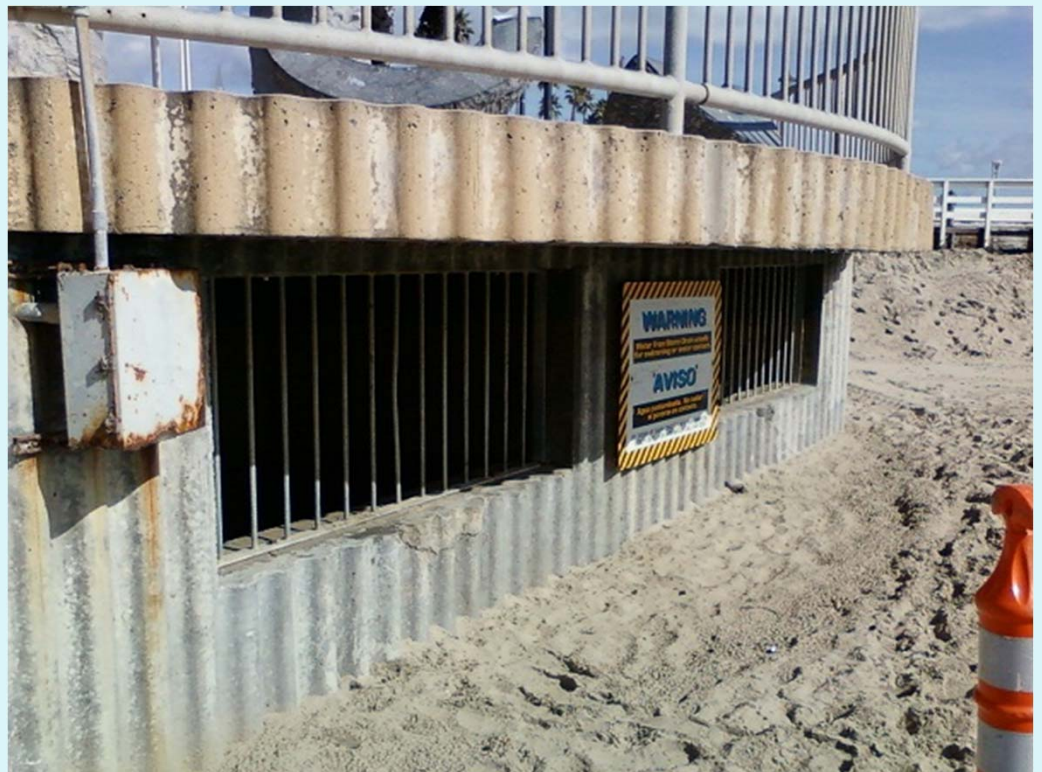


- Lot repaved as part of project
- Match \$40,000 from FY14 budget

Grants & Projects

State Clean Beaches Initiative Grant & CIP Project

- Neary Lagoon Storm Drain Improvement Project
- Goal: Reduce bacteria levels at Cowell Beach
- Storm drain pipes exit at Cowell Beach-buried under sand in summer



Neary Lagoon Beach Outlet Vault

Grants & Projects



Neary Lagoon

**Gates closed in Summer &
opened in Winter**



Installed Spring 2014

Grants & Projects

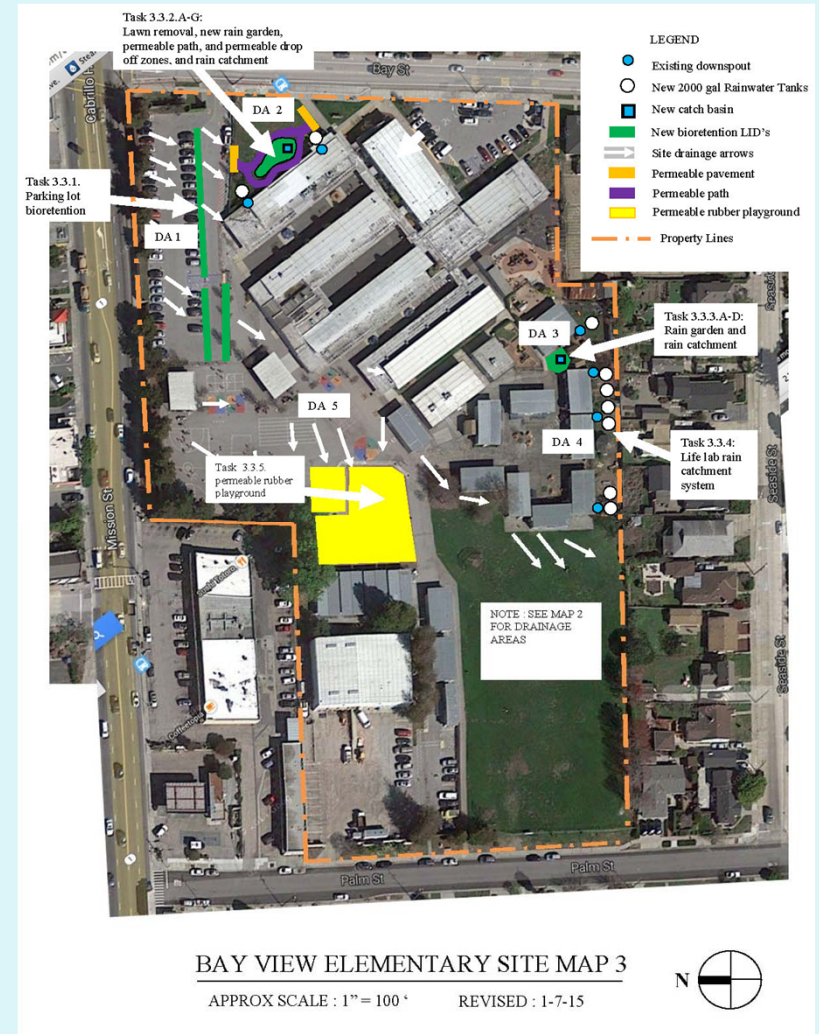
- New hatch at beach outlet vault
- Temp steel plate on gravity pipe opening at beach during summer
- Neary pump station & storm drain lines now cleaned late Spring & Fall



Grants & Projects

State DROPS Grant: Low Impact Design for Schools

- City partnered w/Santa Cruz City Schools and UCSC IDEASS
- \$486,000 Grant Awarded to SC City Schools for Bay View Elementary
- Retrofit LID project: Bio-swales, pervious playground, and rain water catchment/cisterns
- City cost \$15,000 (FY16) towards large rain garden and educational signage



The End



ATTACHMENT

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Environment

- Community
- Business
- Visitors
- Government
- Environment

Environment

Home > Environment > Utility Services > Stormwater > Storm Sewer Service Charge

Commercial Sewer Service Charge

Residential Sewer Service Charge

Contact Us

City of San José
Revenue Management –
Sewer Billing Unit

200 East Santa Clara Street
4th Floor
San José, CA 95113

Phone: (408) 535-7055

Storm Sewer Service Charge

Storm Sewer Service Charge Rate

The Storm Sewer Service Charge rate structure charges users of the storm sewerage system in San José based on the relative quality and quantity of stormwater runoff contributed by residential, commercial, institutional, and industrial properties. The rate structure apportions the costs of storm sewer service to properties in proportion to their relative contribution of flow and pollution to the storm sewer system.

Rates are computed to recover projected costs of the following:

- Stormwater pollution control and permit compliance
- Management, operation, maintenance, and rehabilitation of the storm sewer system
- Improvements to the storm sewer system
- Street sweeping
- Administrative services

Storm Sewer Service Charge rates are reviewed and adjusted annually, as cost and service demand levels change. The current rate structure for storm sewerage services described below became effective July 1, 2011, with San José City Council adoption of Resolution No. 75857 on June 14, 2011. The rates are structured for the estimated cost recovery requirements and the service demand levels of Fiscal Year 2011-12. View the current [residential rates](#) and [commercial rates](#).

For Fiscal Years 2013-14, 2014-15, and 2015-16, no rate increases were adopted. Rates maintain at the same level as Fiscal Year 2011-12.

If you have questions regarding rates for storm sewerage service, please call us at (408) 535-7055.

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City of San Clemente Clean Ocean Program & Fee **Frequently Asked Questions**

What is the Clean Ocean Program?

It is the City's effort to prevent stormwater and urban runoff pollution from entering the storm drain system and being discharged at the beach.

Why does the City need a Clean Ocean Program?

- To protect the environment (water quality in local channels and coastal waters);
- To protect public health and safety (from bacteria and other pollution that could reach the beach);
- To protect local quality of life (local business/tourism, "beach town" reputation, etc.); and
- To meet State Water Code and Federal Clean Water Act permit requirements issued to South Orange County cities by the State.

Who developed the Clean Ocean Program?

The City prepared an Urban Runoff Management Plan (URMP), which included participation and feedback from the community as well as the City's Coastal Advisory Committee (local citizens appointed by the City Council to consider and provide advice on coastal and water quality issues). The URMP guides the Clean Ocean Program, and outlines activities and projects to meet the State and Federal water quality requirements and protect local water quality.

What does the Clean Ocean Program include?

- *Runoff treatment projects*
 - Poche Beach: A treatment system was constructed and is maintained to filter and kill bacteria in the runoff before it reaches the beach. Construction was completed in March of 2009. The system treats up to 1.1 million gallons per day. Weekly water quality tests indicate that the UV treatment removes between 95% - 99% of the bacteria in the storm drain runoff before it discharges to the beach. The current water quality grade at Poche Beach is an A+.
 - North Beach: A system was constructed to divert dry weather runoff away from North Beach and send it to the City's Water Reclamation Plant for treatment. The system started operating on June 1, 2009. It diverts and filters about 350,000 gallons per day. The current water quality grade at North Beach is an A+.
 - Underground storm drain units were installed to remove trash, oil & grease and sediment from runoff before it gets to the beach. Six units have been installed. They are located near Calafia Beach, in the Pier Bowl area, at the west ends of El Portal, at the end of Linda Lane and at Mariposa. In 2013, 35 cubic yards of material was captured and removed by these units. This is material that would have otherwise have ended up in the ocean.
- *Pollution prevention activities*
 - Street Sweeping: the City sweeps public residential streets twice per month and major streets and business areas about 3 times per week. Over 22,000 tons of material has been collected over the last ten several years, enough to fill 550 large (40 cubic yard) trash bins.
 - Catch Basin Inspection and Cleaning: the City inspects at least 2,205 catch basins annually, cleaning them as needed. In 2013, 2,432 catch basins were cleaned and a total of 914 cubic feet of material was removed.
 - Water Quality Testing: water samples from over 20 locations throughout town are sampled each year to help identify potential problem areas and monitor quality progress over time. Flow measurements are also taken to help measure progress in reducing urban runoff flows.
 - Special Studies: the City consulted with scientists to conduct an in depth investigation to find sources of bacteria in the Poche Beach watershed. A year long study which included molecular

City of San Clemente Clean Ocean Program & Fee **Frequently Asked Questions**

marker testing culminated in focused recommendations and a strategic plan for reducing bacteria at Poche Beach. The final report of the study is located on the Clean Ocean Program website at www.sccleanocean.org.

- **Commercial, Industrial and Construction Site Inspections:** Inspections of businesses, industrial facilities and construction sites are conducted to make sure these sites are using proper Best Management Practices (BMPs) to prevent pollution from entering the storm drain system and reaching the beach. Over 9,000 inspections have been completed in the last 10 years.
- **Spill Cleanups and Storm Drain Maintenance:** A 24/7 hotline number (**366-1553**) is in place to respond to and cleanup spills or investigate reported illegal discharges. In addition, the City performs ongoing maintenance to ensure proper function of the storm drain system and inspects all public catch basins annually and removes materials that might be discharge into the system.
- **Enforcement of Anti-pollution Ordinances:** Dedicated officials enforce water quality laws to identify and correct violations. Depending on the severity of the violation, enforcement may include verbal warnings, written correction orders, and/or fines of \$100, \$200, or \$500 per violation.
- **Public Outreach and Education:** Efforts promote awareness of stormwater and urban runoff pollution impacts, and ways the public can help prevent this pollution from happening in the first place.

What is the cost of implementing the Clean Ocean Program?

The cost to implement the program is about \$2.2 million per year.

What is the cost of not implementing the Clean Ocean Program?

The City could be liable for large fines if the State finds that the City is not meeting the requirements of the stormwater permit regulations. Also, there are potential economic impacts (tourism, real estate values, etc.) if the City does not work to protect its healthy beach town reputation.

How is the Clean Ocean Program funded?

By a Clean Ocean utility fee charged to property owners. The fee is collected as a line item on the monthly utility bill for owners that get water service from the City. The fee is charged monthly but collected via a separate twice-yearly bill to San Clemente property owners that get water service from other providers (e.g. South Coast Water District or Santa Margarita Water District).

Why do property owners get charged the Clean Ocean Fee?

Developed and graded properties contribute runoff to the storm drain system (which includes pipes, channels, drain inlets and street gutters). This runoff contains or picks up pollution before it enters the storm drain, which the City must then address. Since providing storm drain and water quality services is like other utility services provided by the City (e.g. drinking water and sewer service), it is appropriate that property owners pay for the cost of this service.

How long will the continued fee be in effect? When will it end?

If approved by San Clemente property owners, the existing Clean Ocean Fee would be continued for an additional six and one-half (6.5) years, and would expire on June 30, 2020.

How much will the fee increase over the next 6.5 years?

The continued Clean Ocean Fee would be fixed and would not increase over the entire period.

Why are property owners voting on this fee?

**City of San Clemente Clean Ocean Program & Fee
Frequently Asked Questions**

Under the provisions of California Proposition 218, property owners must approve new property fees adopted by cities.

What is the change from the existing to the proposed Clean Ocean Fee?

Single Family Residential Monthly Fee		
	Current Fee	Proposed New Fee
Private street	\$ 4.39	\$ 5.10
Public street	\$ 5.02	\$ 6.23

Multi-Family Residential Monthly Fee		
	Current Fee (per residential unit)	Proposed New Fee (per residential unit)
Private street	\$3.51	\$4.08
Public street	\$4.01	\$4.98

Non-Residential (Commercial, Industrial, Business Park) Monthly Fee		
	Current Fee (per acre or fraction thereof)	Proposed New Fee (per acre or fraction thereof)
Private street	\$43.90	\$51.00
Public street	\$50.20	\$62.30
Note: Almost all non-residential streets within the City are public streets.		

Undeveloped, Graded Property Monthly Fee				
	Current Fee		Proposed New Fee	
	<i>2 acres or less</i>	<i>Each acre over 2 add:</i>	<i>2 acres or less</i>	<i>Each acre over 2 add:</i>
Private street	\$2.20	\$0.44	\$2.55	\$0.51
Public street	\$2.51	\$0.50	\$3.12	\$0.62
Note: There is no clean ocean fee charge for undeveloped, ungraded parcels.				

Note: Properties on private streets are charged a lower rate since the City doesn't provide street sweeping service on private streets.

How is the fee calculated?

The fee is based on a parcel's expected contribution of runoff, which is determined by an estimate of the impervious area on that parcel. Impervious areas include such things as buildings and pavement, which prevent or restrict storm water from getting into the soil and increase runoff from a parcel.

Why is the existing Clean Ocean Fee being proposed to be continued?

The fee funds a stormwater quality program that the State requires the City to implement. Since the fee was last approved, the State revised and adopted a new stormwater permit for the south Orange County area that contains more rigorous requirements. Also, the State recently adopted new requirements for bacteria pollution for which the City must comply.

What happens if continuation of the existing Clean Ocean Fee is not approved?

If the Clean Ocean Fee is not continued, the City will need to support the Clean Ocean Program with some other funding source. The most likely source would be the General Fund, which would result in about \$2 million each year that would not be available for other needed projects and programs within the City.

City of San Clemente Clean Ocean Program & Fee
Frequently Asked Questions

How and when will the vote occur?

All record owners of property within the City that are directly subject to the proposed fee will receive an official mail-in ballot with a postage paid addressed return envelope. The ballots will be mailed to property owners on October 25, 2013. Return ballots are due on December 10, 2013.

How do I cast my vote?

Simply fill out the ballot and mail or deliver it to the San Clemente City Clerk by the due date noted on the ballot.

How do I get more information?

More information about the proposed fee continuation is available on the City's website at www.sccleanocean.org. You may also call the Environmental Programs Section at (949) 361-8204 or send an email to cleanwater@san-clemente.org.

What's the difference between storm drains and sewers – doesn't it all get treated?

Like most other cities, the City of San Clemente owns and operates a storm drain system, which is the network of channels and pipes that collect stormwater and urban runoff and discharges it into the ocean. Unlike sewer systems that send sewage to a treatment plant before being discharged, most storm drain systems, including the City's, were built to collect and convey runoff to prevent flooding but not to treat urban water runoff. Therefore, any pollutants that runoff carries into the storm drain system are discharged untreated along the City's shoreline.

Do other cities have a Clean Ocean Program?

They may call it something else, but all cities in the urbanized areas of Southern California are required by the State to implement stormwater and urban runoff programs to prevent discharges of pollution to creeks, rivers and the ocean.

How do we know that the Clean Ocean Program is working?

- The City records amounts of trash picked up by street sweepers and removed from underground treatment devices.
- Larger treatment projects include monitoring to compare water quality before and after treatment.
- The City tracks the number of enforcement actions and inspections to document these efforts.

Why should San Clemente property owners pay to clean up pollution from upstream cities?

Unlike most cities in Southern California, San Clemente's city boundary is very similar to the local watershed boundary. This means that San Clemente is a self-contained watershed, and that there are no upstream cities that contribute pollution through our local watershed. So the pollution in our storm drains comes from San Clemente properties, and not from out-of-town areas.

How can I help?

To learn about simple tips to help prevent urban runoff pollution, please visit www.sccleanocean.org or www.ocwatersheds.com.

To learn about potential volunteer opportunities (e.g. beach cleanups), please visit www.scwatersheds.com.

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News

Palo Alto proceeds with storm water management fee increase

By **JACQUELINE LEE** | jlee1@bayareanewsgroup.com |

PUBLISHED: August 30, 2016 at 2:48 pm | UPDATED: August 31, 2016 at 7:56 am

PALO ALTO — Money from a proposed increase in storm water management fees would be spent more on operating costs than capital improvements, Palo Alto City Council decided on Monday, reversing a decision made earlier this year.

The council previously approved a resolution calling for a monthly fee of \$13.65, up from \$13.03.

The breakdown of the increased bill was going to be \$6.62 as the base amount and \$7.03 for capital improvements. Now, the allocation is reversed so that \$7.48 is the base and \$6.17 is for improvements.

City staff told council members that initial calculations were off because they were based on fiscal year 2016, rather than 2017, and more money is needed for operating costs.

A public protest hearing on the rate hike is set for Oct. 24. Property owners can file written opposition to the fee increase until then. If a majority does so, then the council has to terminate the fee increase process.

If there is no majority opposition, then the city will conduct a mail ballot election on the fee increase between Jan. 11 and Feb. 28.

If approved, the new fees would go into effect June 1 and generate about \$6.9 million in revenue annually for the next 15 years.

In early 2015, the city identified about \$37 million worth of capital improvements that are needed.

Property owners currently pay about \$12.63 per month in storm drain bills.

Current fees will expire in June. If no action is taken to approve updated fees, then the rates will revert to \$4.25, an amount property owners approved in 2005, which city leaders say is not enough to maintain operations.

Email Jacqueline Lee at jlee1@bayareanewsgroup.com or call her at 650-391-1334; follow her at twitter.com/jleenews.

Jacqueline Lee Jacqueline Lee is a reporter covering Palo Alto for the Bay Area News Group. Lee is an LA native and alum of USC Annenberg.

 [Follow Jacqueline Lee @jleenews](https://twitter.com/jleenews)

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Sewer and Storm Water Fees

The charts below provide information on Sewer Fees and Storm Water Fees in the City of Alameda.

SEWER SERVICE FEE, CITY OF ALAMEDA

	FY2016	FY2017	FY2018	FY2019	FY2020
		% Increase	% Increase	% Increase	% Increase
		3.0%	3.0%	3.0%	3.0%
Single Family (\$/month)	\$23.93	\$24.65	\$25.39	\$26.15	\$26.93
Multi-Family (\$/month)	\$21.54	\$22.19	\$22.86	\$23.55	\$24.26
Commercial Fixed Charge (\$/month) (includes first 730 cubic feet)	\$21.54	\$22.19	\$22.86	\$23.55	\$24.26
Flow-Based Rate (\$ per Hundred cubic feet)	\$2.96	\$3.05	\$3.14	\$3.23	\$3.33

STORM WATER FEE, CITY OF ALAMEDA

The Fee is based on the amount of pollution that the City estimates enters the municipal storm water system as a result of the installation or maintenance of impervious surfaces.

2,000 square feet of impervious surface = 1 Impervious Surface Unit (ISU)

The Fee is calculated according to the following formula:

Number of Impervious Surface Units (ISU)

multiplied by

Fee per Equivalent Residential Unit (ERU)

	Storm Water Fee
<p>Typical Single Family Residential Parcel</p> <p>A typical residential parcel has 5,000 square feet of surface area. 40 percent, or 2,000 square feet, is comprised of impervious surface (1 ISU).</p>	<p>\$56.15</p> <p>(1 Equivalent Residential Unit fee)</p>
<p>Condominium (per unit)</p> <p>A typical condo unit has 600 square feet of impervious surface area (0.3 ISU).</p>	<p>\$16.85</p> <p>(0.3 x 1 ERU)</p>

Other parcels with Impervious Surfaces are subject to the Fee based upon stated formula Fee: Number of ISUs **multiplied by** Fee per ERU.

DECLARATION OF SERVICE BY EMAIL

I, the undersigned, declare as follows:

I am a resident of the County of Sacramento and I am over the age of 18 years, and not a party to the within action. My place of employment is 980 Ninth Street, Suite 300, Sacramento, California 95814.

On September 27, 2017, I served the:

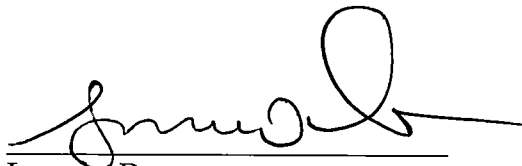
- **SWRCB and SDRWQCB Comments on the Test Claim filed September 22, 2017**

*California Regional Water Quality Control Board, San Diego Region,
Order No. R9-2010-0016, 11-TC-03*

County of Riverside, Riverside County Flood Control and Water Conservation District,
Cities of Murrieta, Temecula, and Wildomar, Co-Claimants

By making it available on the Commission's website and providing notice of how to locate it to the email addresses provided on the attached mailing list.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on September 27, 2017 at Sacramento, California.



Lorenzo Duran
Commission on State Mandates
980 Ninth Street, Suite 300
Sacramento, CA 95814
(916) 323-3562

COMMISSION ON STATE MANDATES

Mailing List

Last Updated: 9/21/17

Claim Number: 11-TC-03

Matter: California Regional Water Quality Control Board, San Diego Region, Order No. R9-2010-0016

Claimants: City of Murrieta
City of Temecula
City of Wildomar
County of Riverside
Riverside County Flood Control and Water Conservation District

TO ALL PARTIES, INTERESTED PARTIES, AND INTERESTED PERSONS:

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